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1 **The Challenge**, MG Ellis D. Parker
2 **Operational Maneuver, The Key to Joint Warfighting**, LTG James J. Lindsay
7 **Views From Readers**
8 **Combat Support Air Traffic Management System**, COL Charles Woodhurst and CPT Jose R. Rodriguez-Harrison
10 **PEARL'S**
14 **Army Aviation Museum: T700 Turboshaft Engine**
15 **Hours and Hours of Unending Boredom Interrupted by Moments of STARK NAKED FEAR**, MAJ John W. Simmons
16 **Against All Odds—Theoretical Aspects of Microburst Flight**, LCDR Joseph F. Towers
20 **FLIP Account Managers**, Mr. Monroe J. Mitchell
22 **Army Aviation—Trained to Fight?**, CW2 Charles E. Butler
26 **Checkride Terror**, CW2 Kevin Buckrucker Sr.
29 **Aviation Personnel Notes: Avionics Becomes Part of Aviation Branch**, MSG Leon F. Pelletier; **Just The Facts**
32 **DES Report to the Field: Management of Enlisted Flying Status**, SFC William A. Kruczek
34 **Aviation Basic Noncommissioned Officer Course**, SGM Clarence P. Holokai
36 **Aviation Advanced Noncommissioned Officer Course**, SFC Thomas A. Siano
38 **USAREUR Joint Combined Arms Exercise**, SSG Frank Cox
40 **A Systems Approach to Aircraft Management**, MAJ Rick D. Hancock
44 **ATC Action Line: Restriction to Overflight of Department of Energy Nuclear Facilities**, Mr. Jesse Burch

Inside Back Cover: **ABOVE THE BEST—CW3 Richard H. Walch**

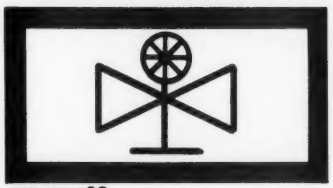
Back Cover: **Dear Lieutenant**, CPT Robert C. McGowan

Cover: **Army Aviation is essential to the warfighting potential of XVIII Airborne Corps, now a more powerful, more flexible, more strategically responsive force than ever before. Story begins on page 2.**

page 8

page 15

page 22



page 40

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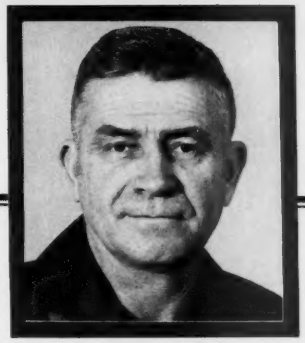
Major General Ellis D. Parker
Chief, Army Aviation Branch



THE CHALLENGE

THERE HAS BEEN much said about the moratorium on emergency touchdown maneuvers, the condensed operator's manuals and checklists, and the "relaxed" version of Army Regulation (AR) 95-1, "General Provisions and Flight Regulations." These are all related and are considered a part of the new philosophy within Army Aviation today. The increased cost of training our aviators and maintaining our fleet of aircraft prohibits anything but maximum use of training time in our day-to-day operations.

The moratorium on emergency touchdown maneuvers has made it possible for commanders to place maximum emphasis on combat skills that keep their aviators at the peak of readiness. We will continue to give the fledgling aviators the best possible training in the mechanics of flying at the Aviation Center. These new pilots will then be released to become an asset to the total force.

The basic skills you as aviators receive during flight training will be the building blocks for the remainder of your careers. However, autorotations in the controlled environment of Ft. Rucker are far different from those executed under simulated combat or combat conditions. You will not have the luxury of 90 knots and 1,000 foot altitudes with landing to a hard surface. Most likely you can expect 35 knots and 50 feet landing into trees. Therefore, you must be able to apply the fundamentals of your training to the combat environment. Now is the time to learn. Once you leave Ft. Rucker, you will be a rated aviator, making your own decisions in the cockpit. For those of you who have passed this way already, stay in the books; continue to learn.

The new philosophy in our operator's manuals and checklists is to have the field responsive to combat training. Many times you have heard "train as you would fight because you will fight as you train." The operator's manual contains the essential information the operator needs to employ that system, specifically in a combat environment, without sacrificing safety. We have removed maintenance and training and placed them in the proper publication. Extraneous, nonessential information that has no bearing on the immediate operation of the aircraft has been removed. The aviator must not be expected to duplicate the duties of the crewchief or the maintenance officer. There is no excuse for an aviator having to check each and every nut, bolt and rivet when those same tasks are being performed by maintenance personnel.

We in the Army Aviation community must have the confidence in our maintenance people that they have done their jobs, because we cannot afford to sit on the ground for long periods of time and waste fuel and blade time on unnecessary and inefficient runup procedures. It is time to start acting smart by looking for ways to trim unnecessary procedures that do not sacrifice safety or yield benefits. The UH-1 Huey Operator's Manual and Checklist led the way for us, with other aircraft publications now in the process of being revised.

AR 95-1 also has been revised to reflect this new philosophy. AR 95-1 gives commanders the latitude to command, to be innovative in their training programs and flexible in their standardization programs. There is no way we can define a regulation for every situation for every unit in the world. There are too many variables in personalities, environments and missions. Therefore, AR 95-1 gives commanders the general guidance to make rules regarding unit command. They must demonstrate initiative and innovation in developing their unit's training. They must be able to correlate the aircrew training manuals to the operator's manuals and to AR 95-1 to be an effective commander. These publications reflect the commonsense approach to leadership, and AR 95-1 provides guidance for decentralization, thereby allowing a commander to command.

The moratorium on touchdown emergency procedures training shifted our training emphasis to combat training. Those tasks that determine success or failure in combat are the ones that deserve the most emphasis. The operator's manuals and AR 95-1 were revised to give commanders a chance to implement those training programs immediately. The publications exist for commanders to train their units in combat effectiveness. I extend the challenge to all Army Aviation personnel to use these tools to become a part of the finest aviation team. We will continue to improve, but the road is long. We must work efficiently and be smart in our training efforts.

illustration by Peter A. Eschbach

AIR-LAND BATTLE doctrine is not a subject reserved for seminar discussions in our military schools nor suitable only for sterile examination through articles in military journals. It is, and must be, the foundation for all plans and training—the basis for our preparation for combat. The air-land "team" is a joint, combined arms team: Every member has an important role. Resources are too scarce and the technology of modern warfare is too complex for reliance on a single service or branch to "carry the day."

Army Aviation is one part of the air-land team that has yet to realize its full operational potential. As Major General Bobby Maddox said in this journal 2 years ago, "When Army Aviation is properly employed in concert with other combat arms . . . deci-

Operational Maneuver

The Key to Joint Warfighting

Lieutenant General James J. Lindsay

sive offensive action can be quickly undertaken and successes exploited." XVIII Airborne Corps is learning through experience in training exercises that Army Aviation offers the operational commander tremendous capabilities for decisive action in a campaign. The successful commander may well be the one who best exploits this resource of air-land combat power. I want to share with you one example of how the employment of aviation as the centerpiece of operational maneuver could be decisive.

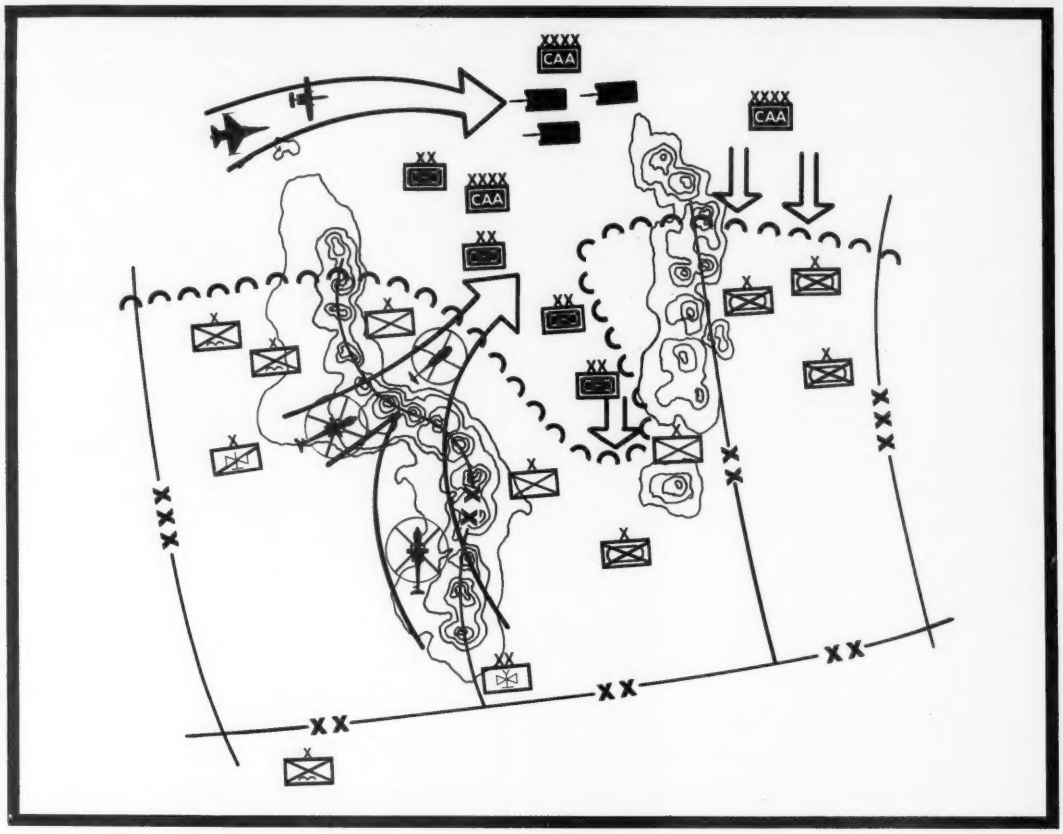
XVIII Airborne Corps is a more powerful, more flexible, more strategically responsive force than ever before, and Army Aviation assets are essential to the warfighting potential of the Corps. XVIII Airborne Corps is organized under Corps training with the 82d Airborne Division, the 24th Infantry Division (Mechanized), and the 101st Airborne Division (Air Assault). Two separate brigades, the 194th Armor Brigade (BDE) and 197th Infantry BDE, are our other major combat units. Five brigade-sized combat support and combat service support units — 16th MP BDE, Corps Artillery, 20th Engineer BDE, 35th Signal BDE, 525th MI BDE— and 1st Corps Support Command complete the Corps structure. Later this year, a combat aviation brigade will be organized as part of the Corps.

Unlike any other equivalent unit in the Army, XVIII Airborne Corps has contingency responsibilities and operational plans in support of five unified commands. The wide range of geographical and geopolitical environments for which we are responsible requires us to be prepared for immediate deployment anywhere in the world, for combat operations at all levels of conflict. The most difficult scenarios for which we must prepare are those supporting the commander in chief, Central and Southeast Asia.

photo by SP4 Stephen B. Pollock

Paratroopers from the XVIII Airborne Corps begin their canopied descent over Sicily drop zone during a recent mass-tactical airborne operation at Ft. Bragg.

Operational Maneuver, continued



To illustrate the challenges of that theater and to examine some creative ways of meeting those challenges, the following scenario will provide the framework: XVIII Airborne Corps is conducting a defense in sector, preparing for operations to defeat the enemy in zone so as to gain the operational initiative and to prosecute the campaign. The Corps is immediately opposed by the bulk of two combined arms armies (CAAs) with a third CAA in echelon poised for potential exploitation. The array and vectors of enemy forces indicate their intention to achieve a penetration by either of the committed CAAs, then thrust the trailing CAA through our forward line of own troops (FLOT) to continue the advance.

The terrain in the Corps' sector allows rapid forward movement of enemy forces along two clearly demarcated corridors. However, massive terrain features separating these corridors do not permit the rapid shifting of forces laterally between them.

The Corps has four-division-plus forces available—airborne, air assault, light infantry and mechanized infantry divisions; plus a separate mechanized infantry brigade and a air cavalry combat brigade. This mixture of forces provides a wide range of operational options, and the diverse array of Army Aviation adds significantly to the tactical mobility of the force. Even so, the ground forces must rely heavily on tactical air support. Full realization of the air-land tenets of depth and agility is possible only through careful and creative synchronization of the air and land campaigns and the initiative to fully exploit aviation resources.

The last and not least factor of METT-T is time (mission, enemy, troops, terrain and time). Air-land battle is four-dimensional. Time is crucial to this scenario in two ways—first, success is closely linked to the effectiveness of intelligence preparation of the battlefield. The operational commander needs time to identify key decision points and to plan for decisive action at those points. Second, where and how to act are crucial, but given the limited combat resources available, *when* to act may be more crucial. The aggressive application of combat power—well planned, fully integrated, and swiftly executed—is the essence of successful operational maneuver. The situation described provides the setting for highlighting the critical difference that air combat power can make.

One plausible extension of the scenario depicts a massive enemy penetration into one of the two corridors. The success of the defense depends upon an effective counterattack. More to the point, a decisive counterattack can directly contribute toward the achievement of the overall campaign objective—to seize the initiative. Our ground resources are limited relative to the enemy facing the Corps, so the required operational maneuver must take a somewhat unorthodox form. The Corps will counterattack by fire—using the combined effects of Army air support (combat aviation brigade, air assault division, etc.) and tactical air (TACAIR).

In addition to the effectiveness of the counterattack itself, success depends on two other critical factors: first, the penetration must be "shaped" by the committed Corps units. Our light infantry can play a significant role here by wisely using terrain and the expertise of combat engineers. In fact, XVIII Airborne Corps light units have shown the effectiveness of these techniques at the National Training Center, Ft. Irwin, CA.

Second, the Air Force must delay the momentum of the trailing CAA force to widen the gap between it and the committed CAA, exposing the enemy penetration to the full concentration of combat power by our counterattacking units. This brings out the importance of thorough coordination of the air and land campaigns. In fact, the term "coordination" is insufficient. An air-land campaign, in the fullest sense, occurs only when *all* air and land engagements are *fully synchronized* and integrated in space and time.

When these conditions are met, the counterattack is launched. All the fundamental principles of warfighting obviously apply. Unity of effort is maintained by placing the resources available under the control of a battle captain. Given the nature of this operation, the commander of an air assault brigade or of the combat aviation brigade is a likely choice for this assignment. The significance of this possibility cannot be overstressed. Just as it is imperative that the ground commander know the capabilities and limitations of Army Aviation, a successful Aviation commander, especially at brigade level, must have an indepth knowledge and understanding of the operational art—both on the ground and in the air. This won't happen by accident. It will take conscious effort to learn the fundamentals and then to practice them in training events and exercises.

The combined effects of Air Force and Army air combat power exemplify the principle of synergism. The mobility, responsiveness and lethality of joint air attack teams (JAATs) offer the commander a significant combat multiplier. We are just learning the extent of their combat potential and have also identified areas where we need to improve our understanding. For example, there are some who believe that JAAT operations are or ought to be confined to the area of the FLOT. But as the scenario we've offered here makes clear, there may be circumstances that call for these missions at much greater depth. The effectiveness of suppression of enemy air defenses is the key to the range at which JAAT can be successful. When the counterattack by air is seen as simply another form of operational maneuver, then the commander is not constrained by preconceived notions of where or how to apply the combat power made available to him.

A recurring difficulty of joint operations at all levels is the problem of conveying the commander's intent accurately and fully to those who must execute it on the ground and in the air. The same is true about providing timely intelligence to the attacking forces. The Army and Air Force have made conspicuous progress toward integrating our operations at all levels. The battlefield coordination element (BCE) and the Tactical Air Control Center are the Army and Air Force units that provide the interface for the ground and air operational commanders. It is through this lashup that intelligence, planning, and oper-

ations information is exchanged to ensure complete integration. Serious shortfalls still exist in providing the BCE with adequate automation and communications systems to achieve complete interoperability. One example of the deficiency on the Army side is the absence, right now, of an effective means to pass the air tasking order information from Air Force computers to the 60 words per minute systems of Army operational units.

The joint air counterattack postulated here also points up another area where we can improve our odds for success—the Air Force provides real-time intelligence to its pilots, the Army cannot. The Army still relies on the "chain of command" for updating our attacking forces. Obviously, the older the intelligence the lower are the odds for success and the higher the risk. Using systems as lethal as the AH-64 Apache, the lack of current intelligence may prevent us from getting the most from that attack helicopter's combat capabilities. We may need a system similar to the air request net to pass up-to-the-minute intelligence straight to the cockpit.

With the counterattack underway, the operational commander directs all available resources to this decisive action. Our light forces at the "nose" of the enemy penetration must hold firm. The heavier forces in the right division sector continue their unyielding defense to fix the enemy FRONT commander's attention on the apparent success his forces are achieving on our left. Close air support will be diverted from units at the FLOT and devoted to the counterattacking force. TACAIR intensifies its interdiction effort against the second echelon CAA. For the time being, the Corps reserve is depleted. The risks are high, but so is the potential operational payoff. When successful, the operation will turn the momentum of the whole campaign—a major enemy element will have been destroyed. The FRONT commander's own campaign would be radically altered, and the Corps will have gained the initiative for exploitation toward our ultimate campaign objectives.

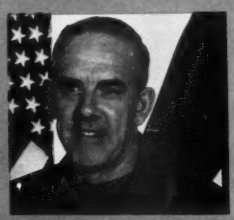
The purpose of this illustration has been to:

- Emphasize the importance of decisive action in the form of operational maneuver as part of an air-land campaign.
- Highlight the joint nature of successful warfighting and areas where improvements can be made.
- Explore the evolving potential of Army Aviation as a maneuver arm of warfare at the operational level.

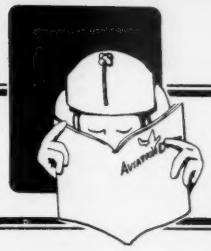
Ultimately, the Army's success or failure on the air-land battlefield rests, as it should, on the shoulders of those who must execute the commander's operational scheme. I challenge the Army Aviation community to assume a role of leadership in forging innovative approaches to the complexity of the operational method. To the degree that the Army as a whole learns to appreciate and to exploit the full capabilities of our emerging systems and organizations, improved joint operations will be the inevitable result.

ABOUT THE AUTHOR

Lieutenant General Lindsay, U.S. Army, is commander, XVIII Airborne Corps and Fort Bragg, Fort Bragg, NC. A veteran infantry officer, he has a long association with the 82d Airborne Division and has served in a number of airborne and other major assignments in his nearly 34 years of active service. LTG Lindsay was assigned to his present command in April 1984.



VIEWS FROM READERS



Editor:

The Army has failed to maximize the potential of the aviation standardization officer for numerous reasons. The first being that there isn't a job description which allows the commander to set goals for this individual. Second, there isn't any schooling that is particular to this position as in safety or maintenance. Third, there isn't any special qualifications identifier (SQI) for the position and in fact there isn't a position identified at company level.

AR 95-1, 3-270 states that, "The SIP (standardization instructor pilot) has technical supervision of the unit aviation standardization program. He or she advises the commander at *all* levels of aviation standardization within the command." Rather broad in scope but without definition. In any event, what qualified the standardization instructor pilot to occupy this position other than the implication in 95-1? The fact of the matter is that while an SIP may be a super instructor pilot, that doesn't necessarily make him or her a good administrator.

It is also rather interesting to note that the *Commander's Guide,* FC 1-210, outlines a comprehensive program for the training of individual aviators. It fails, however, to describe the respective roles of the operations officer and the standardization officer, but instead commits the commander to the management of the program. Herein lies the problem of who is responsible to ensure that the administration matters are accomplished. It is in most situations left to the discretion of the individual appointed as standardization officer to guarantee that the program functions. Due to the lack of definitive duties, this frequently occurs by trial and error and often times those errors are manifested in poor training, both unit and individual. Furthermore, while we continue to augment and increasingly emphasize safety, we allow this void within standardization to grow.

A review of the Officer Ranks Personnel Update indicates that the aviation warrant officer career patterns are divided into four areas. The operations/training career does give a slight mention of the standardization officer. The other three areas, safety, air traffic and maintenance, all have advance schools particular to those skills and management functions; these positions are further formalized by the fact that they all have an SQI particular to the individuals' job position, schooling, and a table of organization and equipment position.

Warrant officers, like the noncommissioned officers, are the middle managers. They offer not only their expertise respective to a particular skill but also, far more importantly, they sustain the operations while management flux and turmoil occur with each change in command. This in concert with the influx of high tech aircraft, retirement of experienced aviators, and the expanding requirements of the threat make it imperative that the Army establish a program to fill this managerial vacancy.

At a minimum cost, I believe that the following recommendations, if implemented, would reap valuable benefits in Army Aviation:

- Develop a job description and define some of the responsibilities of the standardization officer. Incorporate this into the *Commander's Guide.*
- Establish a training program for senior warrant officers who have a flight training background (operations and training career) on the administration and coordination requirements of that position.
- Establish a formal position for a standardization officer at company level.
- Award a special SQI to individuals who have been trained in a formal school, or who have worked in this capacity for 2 years.

CW4 Paul MacMichael
Standardization Officer
Ft. Belvoir, VA

Editor:

We in the Army Aviation Branch can be proud of the fine leadership we have at the top of our branch. I recently had the opportunity to attend the Pre-Command Course. Major General Ellis D. Parker, Brigadier General Rudolph Ostovich III or Brigadier General John Robinson ably lead the discussion on Army Aviation tactics. These Army Aviation leaders deserve a pat on the back for a job well done.

As the battalion commander of a brand new Army Aviation battalion, I find that I am short of pilots. I'm looking for 20 high-quality warrant officer aviators who are leaving the Army and desire to continue their military career as Kansas Army National Guard pilots. Kansas offers excellent educational opportunities at the graduate, undergraduate and professional levels. Contact the 135th Combat Aviation Battalion, P. O. Box 19086, Topeka, KS 66619; (913) 862-0774 for a good part-time flying job while you continue your education at one of our finer universities.

Major Charles R. Rayl
KSARNG

Editor's Note: The *Aviation Digest* will be happy to publish items about either Army National Guard or Army Reserve units. Please send your information to the address at the end of this month's VFR.

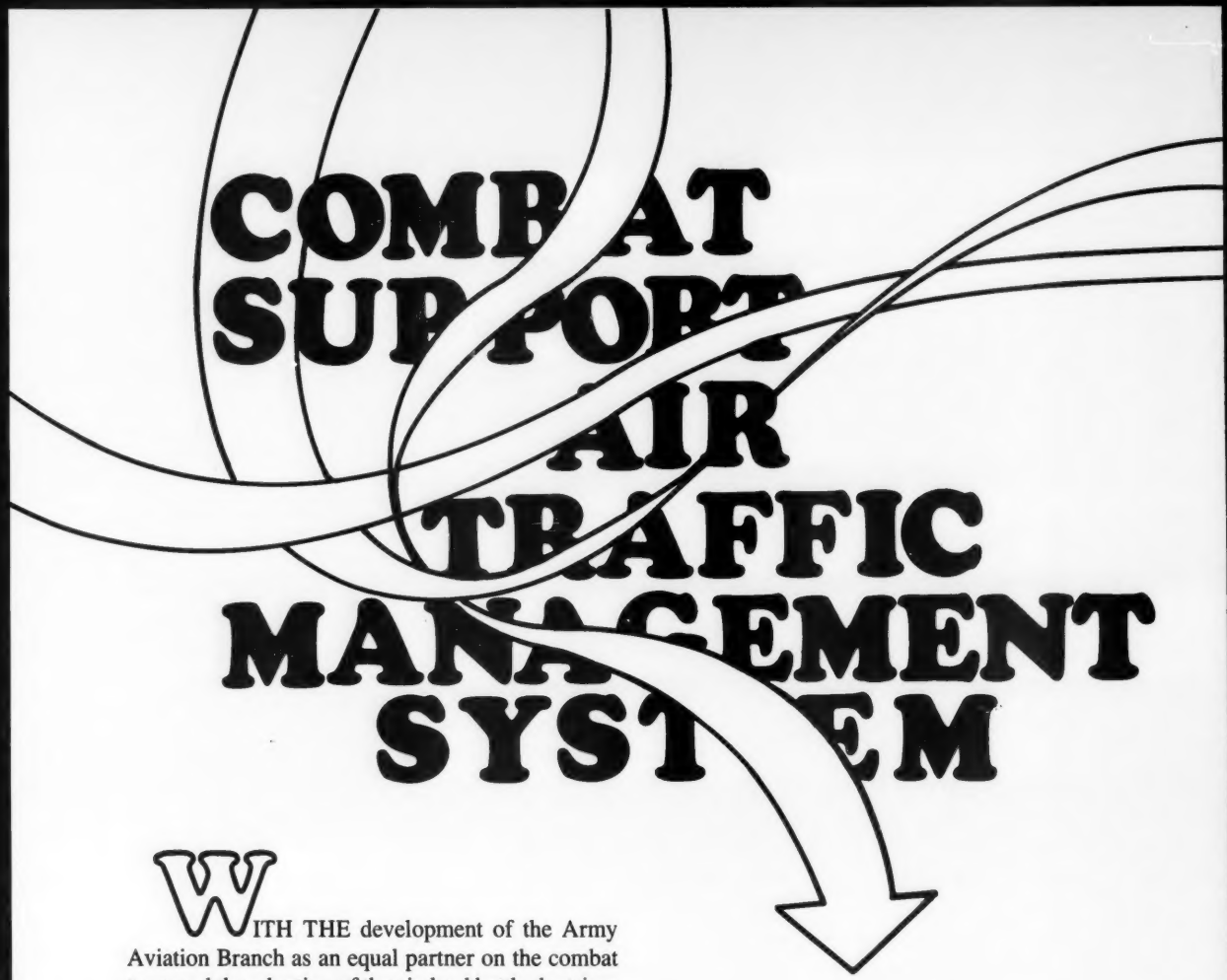
Editor:

I would like to obtain a copy of part I of the article, "Soviet Air Assault Brigade," as published in the November 1985 *Aviation Digest* (mentioned in December 1985 issue, page 40).

SGT Dan Urban
Madison, WI

Articles from the Aviation Digest requested in these letters have been mailed. Readers can obtain copies of material printed in any issue by writing to: Editor, U.S. Army Aviation Digest, P.O. Box 699, Ft. Rucker, AL 36362-5000.

COMBAT SUPPORT AIR TRAFFIC MANAGEMENT SYSTEM

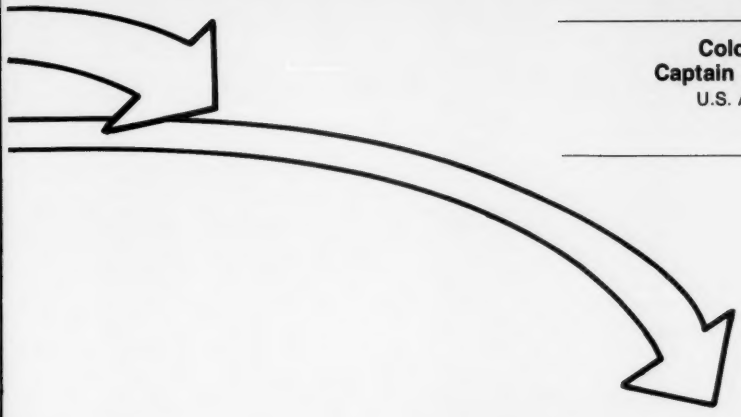


WITH THE development of the Army Aviation Branch as an equal partner on the combat team and the adoption of the air-land battle doctrine, the demand on the airspace within the battlefield has increased exponentially. The dangers imposed by the threat, coupled with the ever-increasing number of airspace users, has made the command and control of the third dimension of the battlefield—airspace—a very complex process.

Recognizing the need to provide Army Aviation and other airspace users with a reliable, effective and responsible system in which to operate, the Combined Arms Center is testing the Army airspace command and control (A2C2) doctrine. Within the A2C2 framework, the U.S. Army Air Traffic Control Activity has embarked on an effort to upgrade air traffic control (ATC) systems and services. In pursuit of this effort, the combat support air traffic management system (CSATMS) concept is in the development stage. A Letter of Agreement has been staffed and signed with U.S. Army Training and Doctrine Command and Army Materiel Command; an operational and organization plan has been drafted; and, a contract will be pursued to develop a required operational capability.

Currently, the ATC system relies on a manual process and pilot active participation to effect airspace deconfliction. This system has several shortcomings that will render it ineffective by the 1990s and beyond. The flight operations center and flight coordination center are the heart of today's tactical ATC system. Their effectiveness is degraded by manual ATC operations that do not provide the management of Army airspace required by the fluid, rapidly changing tactical environment of the air-land battle.

Colonel Charles Woodhurst
Captain Jose R. Rodriguez-Harrison
U.S. Army Air Traffic Control Activity
Fort Huachuca, AZ



With the development and fielding of the CSATMS, the maneuver commander will be able to effectively manage the third dimension of the battlefield. The CSATMS will allow electronic monitor of selected airspace over the corps and division rear areas. This system will provide positive en route separation and airspace deconfliction during periods of low visibility and instrument meteorological conditions. It will provide near real-time information to Army aircraft and effective guidance to avoid indirect fire, air defense artillery, unmanned aerial vehicles and other service aircraft. The CSATMS will be able to electronically identify aircraft, thus providing the commander with a friendly air picture.

The combat support airspace management system will become the central nerve for the ATC system. As the primary ATC operational center, it will provide en route services as well as terminal control and coordination. The system will be comprised of newly developed operational modules (OMs) and equipment modules (EMs).

The OM will consist of modularized subsystems housed in a standard military shelter, and will include:

- an on line programable computer,
- two digital plan position indicators,
- display processors,
- a target acquisition group,
- buffers for remote sensor data,
- a tactical computer/graphic display,
- ultrahigh frequency, very high frequency, enhanced (frequency hopped) frequency modulated and high frequency radio equipment.

The EM will consist of one or more of the following:

- ground controlled approach system,
- Army microwave landing system,
- communications facilities,
- control towers,
- navigational aids.

The CSATMS will be able to provide limited ATC services while on the move. This system will not only be automated, but also will be integrated into the overall Army tactical command, control and communication system and be interoperable with other service ATC systems.

The CSATMS will provide the Army airspace user with a reliable system with which to operate and support the air-land battle concept for 1990 and beyond. It will greatly enhance the coordination and management of interservice airspace. This system will provide the A2C2 cell of the corps/division airspace management element with an effective means for the timely dissemination and coordination of matters pertaining to airspace. It will provide the Army aviator with accurate and timely information and therefore improve the chances for mission accomplishment and pilot/aircraft survivability. The combat support air traffic management system will become a force multiplier on the battlefield.

PEARL'S

Personal Equipment And Rescue/survival Lowdown

PEARL is holding the signal kit, personal, distress—it includes seven pen flares in a plastic bandolier and a launcher (left). As PEARL fires the flare (right) she reminds readers to exercise caution. The flare can reach a height of 1,200 feet with a temperature of 5,000 degrees for a duration of 9 seconds.

photos by Benjamin Martel

Forest Penetrator Flares

These flares will help to pinpoint your location. You should have the launcher type (see photos) that requires only that you push the flare into the launcher, pull the firing knob back and release it to fire the flare. Hold the launcher at 45 degrees up and to the side of your body. Remember to fire the flare well in front of the search aircraft. *You don't want to shoot at the rescue aircraft.*

Flares Sighted

A recent news article: Two apparently suffered no ill effects from 12 hours adrift in a life raft. This is, in fact, support for the survival equipment which was aboard the life raft and the flares that the pilot and copilot had and knew how to use. They had radioed that they were ditching because their fuel was gone. Navy and Coast Guard search planes were hampered by a 1,400-foot cloud cover that forced them to fly very low, and a storm front was expected to sweep through the area later. The aircraft was equipped with emergency gear. A Coast Guard C-130 plane spotted two flares fired by the men and radioed the merchant ship *Evergood* to pick them up and thus a successful rescue was completed. *Your ALSE is vitally important to you. Learn all you can about its use and you too will have a better chance for rescue/survival.*

Desert Survival Situations

The most pressing problem in the desert environment is to: preserve the water you have with you; find a water source; and, prevent dehydration. A good point to remember is that a loss of fluid equal to 15 percent of your body weight is usually *FATAL!* If a small body of water is nearby, check for signs that animals are using it as a water hole. If they are using it, then use some of your water purification tablets to purify the water. If you stay inactive you are going to need from 6 to 10 quarts a day to prevent dehydration. If you are doing heavy work or walking long distances over rough terrain you will need from 9 to 13 quarts of water or more. Try to stay in whatever shade you can find. Protect yourself from sunburn; sun-

burn is something you don't need to be faced with at this point. Wear a hat or some kind of head protection and keep your neck covered. If you are going to travel, try to do it at night. *Whenever possible, stay with your aircraft so that rescue personnel will have a better chance to find you.* In case you missed them, the *Aviation Digest* had solar still articles in October 1965 ("Little Ole Watermaker, Me!") and February 1984 ("PEARL'S, Solar Still"). All you need is a 6x6 foot sheet of clear plastic and a container, or flight helmet. Copies of the articles are available by writing to *Aviation Digest*, P.O. Box 699, Ft. Rucker, AL 36362-5000, or call AUTOVON 588-3619; FTS 533-3619; Commercial (205) 255-3619.

Survival Information and Tips

Your key to survival enhancement is to keep your wits about you. When you find yourself in a survival situation, you must keep believing that help is on the way, and someone will surely find you and the other aircrewmembers and also the passengers if some are onboard the aircraft. There are some things you can do: Set up your survival radio and if you have an emergency locator transmitter (ELT) make sure it is sending out a signal *(NOTE: Do not operate survival radio and ELT at the same time).* Extend your survival radio antenna, hold it vertically and place it in the beacon mode position for 2 minutes; listen for anyone trying to contact you. Repeat the process 3 minutes on and listen for 2 minutes. Then 10 minutes on and listen for 5 minutes. Turn your radio off for 30 minutes to conserve the battery. Use this time to prepare your shelter or whatever else needs to be done. Do not transmit unless you are talking to someone as the voice and modulated continuous wave (MCW) operations use more battery power than the beacon mode. If you are in a cold weather survival situation, you might take the battery and place it next to your body to keep it warm—this will extend the battery life. If you have two survival radios you could alternate the radios in case one may be weaker than the other. The battery should last a minimum of 14 hours in the beacon mode. The range of the survival radio beacon is about 80 nautical miles (nm); the range of the voice and MCW mode is about 60 nm; the line of sight on the ground is between ½ to 1 mile. The higher your radio is, the better is your chance of having someone hear your distress call. *Be sure not to turn your radio on until you extend the antenna. Another very important action is to learn all you can about your survival radio and when you get the chance, test it at your home station. There are certain procedures to follow—see TM 11-5820, "Operators' Aviation Unit and Intermediate Maintenance Manual," which contains a wealth of information.*

Strobe Light Use in Survival Situations

Your strobe light is visible for at least 5 miles in daylight conditions and much more at night in good visibility. The battery is good for 9 hours continuous operation and for 18 hours intermittent use. Like your survival radio, you can keep the battery close to your body to keep it warm when you're not using the light.

Questions and Answers

This material is prepared for the benefit of ALSE personnel and represents some of the most recent questions from field users/ALSE technicians.

What is the official word about the type(s) of compass that is to be used in the SRU-21/P survival vest and other survival kits? The SRU-21/P survival vest and the OV-1 survival vest use compass, magnetic, lensatic, unmounted, NSN 6605-00-151-5337—SC 8465-90-CL-P02 and SC 1680-97-CL-A07. Other kits use compass, magnetic, unmounted, NSN 6605-00-515-5637—SC 1680-97-CL-AXX.

How often are the PRC-90 survival radios inspected? Preflight and/or weekly—TM 11-5820-800-13&P, para 4-8, 30-day preventive maintenance checks and 120-day performance tests.

Survival food cannisters that are a part of the survival kit have expired; has this expiration date been extended? No, they are 5 years shelf life or 3 years service life.

Can you provide me with a list of the water purification tablets that have been condemned/extended? We are referring this to the Medical Service and Veterinary Corps and as soon as we receive an updated listing we will furnish this to all ALSE users.

We understand there is a new survival vest. Is there an NSN? Or are they only being tested? I am referring to the ones where the LPU is sewn onto the vest itself. There is a new small size SRU-21/P vest—NSN 8465-01-174-2355. Also a new survival vest (SAR VIP) is under development. This vest is being designed to provide Armor, Recovery, with survival features.

Is there a list of ALSE publications available? PEARL has developed such a listing of ALSE publications and will send one to you if you will identify yourself and where it is to be sent.

When will the new ALSE field manuals that are being prepared be available? There are several already completed and they are being sent out pinpoint distribution. Several others are in the draft stage at the present.

What is the status of signal flares? I have heard several lots have been condemned. Can you send me a list of unsafe lot numbers? A list of discontinued flares is published in TB 9-1300-385.

Can you place my unit on the updated mailing list so I can be informed of ALSE actions? Yes, identify your unit, attention code and address and give us your name so we can expedite ALSE information to you. We prefer to use the PEARL articles as they get wider distribution, but we will honor your requests.

PEARL'S

PEARL requests field users of ALSE to send us your experiences with actual survival situations. This will help other ALSE personnel who may have a similar experience/situation. By publishing a narrative of the true experience, other aircrews and ALSE people may learn from it and improve chances of survival.

Safety Tidbits

Helicopter flights are not always completed as planned. Dress for an unplanned landing—and a long wait.

ALSE Things Worthy of Repeating

Antiexposure Suits. "His hands became very cold, making some survival kit items difficult to manipulate after he had been in the raft 30 to 40 minutes. The pilot stated that the antiexposure suit he *wore* was instrumental in his safe recovery, and long-term survival would have been doubtful without it. Sea temperature was 46 degrees Fahrenheit." This story certainly tells it all about overwater flying. Without an antiexposure suit, one is risking safe recovery after a safe escape from a downed aircraft. Cold water works fast on rendering the unprotected body useless. Life supporters must continue to "preach the word" and ensure the suits are properly maintained for use. Also don't forget to pack some winter gloves in the kit. The aircrew personnel will appreciate that little extra.

Nomex Flight Clothing. Clearly and briefly stated, fire protective (Nomex) clothing for aircrew personnel is IN. All others are OUT. Sufficient time has elapsed for all aviation units to budget and procure Nomex flying clothing. The nylon flight jacket is no longer authorized for wear by aircrew personnel while flying. The N-2B nylon winter parka is currently used by aircrew personnel in Alaska and some cold weather regions. Unfortunately, this parka contains nylon. We are currently taking action to adopt the U.S. Air Force CWU-45/P Nomex winter jacket and for the information of all concerned the "CLO" value for the N-2B and the CWU-45/P are the same.

Anti-G Protection. For those of you who are undergoing test pilot training for high performance aircraft or who are already assigned to Edwards AFB or other test sites requiring Anti-G-Suit protection, just remember that a "blackout" from loss of G protection lasts an average of 15 seconds. Use that G suit when you need it.

Fire Extinguishers Are Required

Dear PEARL, I have heard some scuttlebut that there is a move to authorize the removal of lifesaving fire extinguishers from some Army aircraft. Could this be true?

No, this is not true although we were privy to a letter that had asked for authority to eliminate fire extinguishers and first aid kits in order to put fuel or ammo in for the weight to be saved. I would like to quote the requirement for fire extinguishers and first aid kits, clarified in Army Regulation (AR) 95-17, "The Army Aviation Life Support Equipment System Program," and also in AR 95-1. Chapter 2, Aviation Life Support Equipment Requirements, paragraph 2-2 of AR 95-17 quoted: "First aid kits will be installed in Army aircraft per requirements of the appropriate operator's manual. First aid kits will be maintained IAW TM 55-1500-328-25 and in the minimum quantities specified in CTA 8-100. Medical supplies will be updated, deleted, or extended in accordance with SB 8-75." And paragraph 2-3 of AR 95-17, covering fire extinguishers, is also quoted: "Each Army aircraft will be equipped with fire extinguishers per appropriate aircraft operator manual."

Dear PEARL, I have recently been assigned the responsibility of the unit ALSE officer. Can you tell me where I can get copies of all the PEARL articles?

We agree that PEARL is very important to the ALSE area and no red blooded Army aircrew person should ever be caught without "PEARL." We have always recommended that you read PEARL and keep the articles handy. You can start by first making sure you receive the *Aviation Digest.* Units can receive copies by submitting DA Form 12-5-R (pinpoint distribution). The *Aviation Digest* can send you available back issues. Use the address or phone number near the top of page 11. Ask your commander to be sure you get a copy so you can start a PEARL library of ALSE.

Dear Pearl, now that summer is coming, would you please resurface your article on scuba diving. I didn't realize that flying after scuba diving could cause the "bends" at altitudes less than 10,000 feet where most of Army Aviation personnel fly.

We are always happy to oblige so here it is: "Flying after scuba diving can be dangerous. Are you aware that flying your plane for a day of scuba diving at the lake or sea shore and then flying home in your civilian aircraft, all within a few hours time can be dangerous, particularly if you have been diving to depths for any length of time? Under the increased pressure of the water, excess nitrogen is absorbed into your system. If sufficient time has not lapsed prior to takeoff for your system to rid itself of this excess gas, you may experience the "bends" at altitudes less than 10,000 feet where most Army aircraft and light planes fly." See FM 1-301, section VI, and AR 40-8. This is another information article and PEARL is sure it will be helpful.

Dear Pearl, recently I was required to secure some SRU-21/P survival vests for a task force of which I was a member. I was utterly dumbfounded when I started inspecting the components of this vest. I found that the old flare with the screw-in cartridge, NSN 1370-00-886-9788 (this can be identified by the caps and screwthreads of the cartridge) was in fact a part of the vest. I remember about 7 or 8 years ago that something came out in PEARL which stated these are being phased out of the Army ALSE equipment.

PEARL did some checking into this article and would you believe this information was published in PEARL November 1975. The proper flare (NSN 3170-00-490-7362) (L119) is the only one authorized for use by Army aircrew personnel. Reference SC 8465-90-CL-P02, 29 March 1985 and ALSE message 8502.

Inertia Reel Assembly

The inertia reel assembly (NSN 1680-00-775-4182) is a multiple application item used on UH-1, AH-1, OH-58 and CH-54 aircraft. In the past, it was managed as a non-repairable item and disposed as a unit level item. As a result of a recent TSARCOM Value Engineering Proposal, it was recommended and approved that the Supply, Maintenance and Recoverability code be changed to require turn-in of this item for repair at depot level. It was determined that this repair program was cost effective and would result in supply availability at a lower overall cost resulting in increased readiness of this vital ALSE. When the inertia reel requires removal the unserviceable reel should be returned to Sharpe Army Depot, Lathrop, CA 95330. RIC AQ5, W62G2T. TSARCOM Supply Letter Number 3382, dated 7 December 1982, covers this same subject.

If you have a question about personal equipment or rescue/survival gear, write PEARL, AMC Project Officer, ATTN: AMCPO-ALSE, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798 or call AUTOVON 693-3817/8 or Commercial 314-263-3817/8.

U.S. Army Class A Aviation Flight Mishaps

	Number	Flying Hours (estimated)	Rate	Fatalities	Total Cost (in millions)
FY 85 (to 30 April)	30	847,493	3.54	27	$64.5
FY 86 (to 30 April)	20	874,435	2.29	19	$45.1

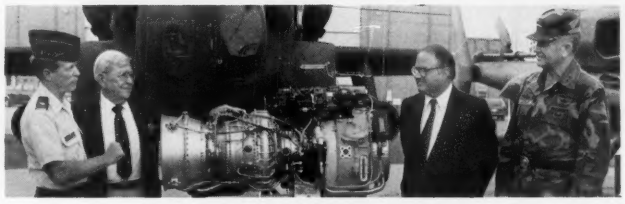
GOAL—
$2,500,000

MAY 1986—
$2,035,000
CASH AND PLEDGES

Army Aviation MUSEUM

This is a series about the Army Aviation Museum Foundation fund drive. Currently, plans call for building a modern complex to house your Army Aviation Museum. Since last month additional donations have been received. However, we still have a ways to go, as the barometer above shows. If you would like to help "build" the Army Aviation Museum's new home, you are invited to send a tax deductible contribution to: The Army Aviation Museum Foundation, Box 610, Ft. Rucker, AL 36362-5000. If you desire additional information call Mr. Ed Brown at (205) 598-2508.

A Look At What's In Your Museum

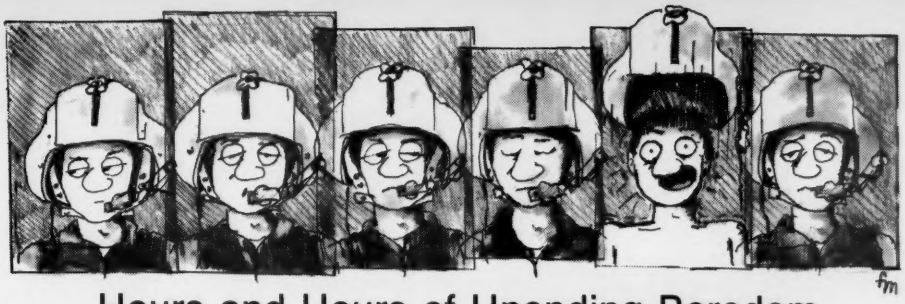


T700 Turboshaft Engine

The salvaged T700 turboshaft engine on display was presented in November 1985 jointly by Mr. Louis A. Bevilacqua (to the right of the engine), a representative from General Electric Company, and by Colonel Ralph H. Lauder (far left), project manager from the U.S. Army Aviation Systems Command. Receiving the engine display are Mr. Thomas J. Sabiston (second from the left), museum curator and Major General Ellis D. Parker (far right), commander of the U.S. Army Aviation Center, Ft. Rucker, AL.

The T700 is a gas turbine engine used to power two of the Army's newly fielded helicopters, the AH-64 Apache and the UH-60 Black Hawk. This engine also is in service on four other production helicopters.

According to General Electric, the basic T700 engine was originally designed in the early 1970s to meet Army specifications for power, performance and weight requirements. The challenge was *not only met* by soldiers and civilian team members from Ft. Rucker, and the Aviation Systems Command, *but it was exceeded* in the process by designing the T700 engine so its power could be increased 70 percent (from 1,500 to 2,700 horsepower) without redesigning the basic engine; also, maintenance or repairs on the engine can be done with just 10 tools. The result has been a true Army-industry moneysaving success story.



Hours and Hours of Unending Boredom Interrupted by Moments of **STARK NAKED FEAR**

THERE I WAS . . . yes this is an "I learned about flying from that" story. It could have been preserved for numerous recitations at happy hour with no conceivable limit on the embellishment with each telling. Rather, the experience provides an important lesson learned which should be shared. Follow the story to the point where the emergency was declared, put the magazine down and mentally determine what you would have done.

The flight always starts out in an uneventful manner, routine preflight, mission brief and weather. Night flight in light rain and with lowering ceilings and visibility on a training mission was of little concern since visual flight rules conditions were forecast. Crew endurance limits would not be exceeded though it had been a long day. No discernable trends in the *Flightfax* had been noticed (a silly theory, that trouble comes in threes). A quick though thorough review of the operations manual emergency procedures had been completed earlier that day.

What an accurate forecast: A dark cold night, limited visibility; low ceilings and rain. Toward the end of the flight the pilot in command (PIC) stated that he thought he smelled something unusual, did I smell it? Mentally: unusual smell—overheated battery, hydraulic fluid, transmission fluid, electrical fire, fuselage fire—no, I could not detect an unusual smell and all systems were in the green. I suggested that I make a visual inspection at the completion of the approach. After obtaining permission from the tower to clear the active runway, I performed a thorough visual inspection: engine compartment, oil level, transmission oil level, engine oil cooler compartment, battery compartment and a walk around. Unusual smell; must have been pollution. This helicopter flew well and *all systems were go.* The scenario at this point should clearly convey the perspective: the helicopter is fine, weather is tolerable.

My turn to fly. Lift-off was typical though not silk smooth—there is a difference in handling characteristics from the left seat. Hover was longer than required just to dispel any doubts. Clearance for closed traffic was received. How many takeoffs were just like this on initial climb-out at 30 to 40 knots and about 200 feet.

My gosh, was the jolt to my entire system caused by a lightening strike? Or was adrenalin so powerful? Yes, I was experiencing a heightened level of consciousness.

The external stimuli had registered and I had responded, but now I had to consciously categorize the sight, sound, touch, smell and taste. Simultaneously: *touch*—slight binding in cyclic and definite feedback; *sound*—a very loud chirping sound with the same frequency as the main rotor's revolutions; *sight*—no doubt about the position in the flight envelope known as the dead man's curve and the dark, heavily wooded forest below, the runway behind us, the noticeable vibration in the airframe and the normal indications on all systems; *smell* and *taste*—nothing unusual. I felt the PIC on the controls as he announced his action and am not certain who initiated the turn and descent to the airport. My mind functioned faster than any computer, what emergency were we experiencing? My very existence, it seemed like, was screaming for an answer from the brain. The PIC had the powered approach underway and I had declared an emergency. An autorotation would be faster, and a powered approach might be required, but only if the transmission were failing or perhaps it was a flight control malfunction. *What was that ever-present loud chirping that so startled my adrenal gland?* The brain's only output now was not what I wanted to hear. Since I had not 1 minute ago completed a thorough visual inspection and all systems confirmed no emergency, the mind isolated that system not checked: main rotor. Yes, feedback, unusual loud sound and a sound that was in harmony with the rotor. Too close now for an autorotation. It was intended as a command but was a plea—just don't separate until we are closer.

STOP HERE. What was the emergency? Did we act properly? What would you have done? Before turning to page 28 think through the scenario.

Major John W. Simmons
U.S. Army Research and Technology Laboratories (AVSCOM)
Fort Eustis, VA

MONTHLY WRITING AWARD

U.S. ARMY SAFETY CENTER

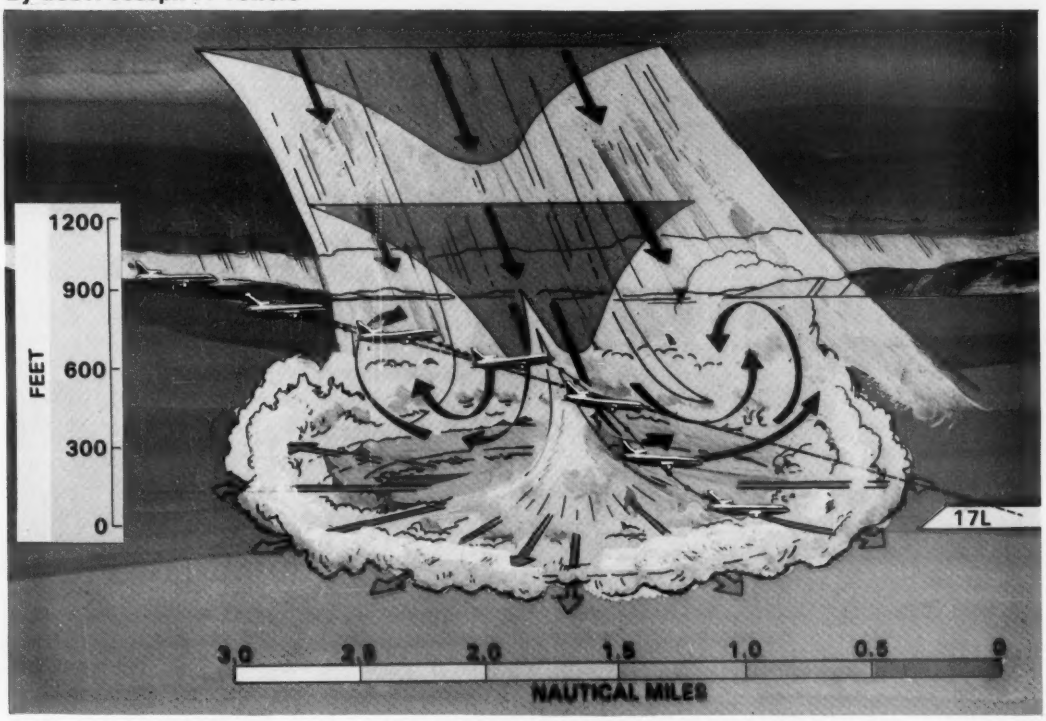
Part I

Against All Odds

Theoretical Aspects of Microburst Flight

While this article uses commercial aircraft accidents as examples of the devastating effects from microburst-induced windshear, the problem of windshear is not limited to commercial aviation. Army aircraft have reported encounters with windshear—the most recent case in April of this year.

By LCDR Joseph F. Towers



Schematic drawing of Flight 191, showing effects of severe microburst-induced windshear while the aircraft was on approach to Dallas/Ft. Worth International.

About the Author

LCDR Joseph F. Towers is a reserve Naval aviator flying as an instructor pilot in the DC-9 with VR-57 at NAS North Island, CA. Commander Towers is a San Diego-based First Officer on the B-767 with American Airlines and an independent safety consultant specializing in microburst-induced windshear, flight crew training, and mishap prevention. Commander Towers has studied and written extensively on the phenomenon of microburst-induced windshear for the last 5 years. His most recent effort was compilation of an in-depth paper on the flight-related aspects of the microburst phenomenon, which he presented at the 24th Aerospace Sciences Meeting sponsored by the American Institute of Aeronautics and Astronautics in Reno, Nevada, in January 1986.

Commander Towers' article will be presented in three parts. In this issue, he provides information to enhance flight crew understanding and increased awareness of the microburst threat.

Part II, in the June issue of *Aviation Digest,* will present a fundamental aerodynamic explanation of microbursts. In Part III, to be published in July, Commander Towers provides some techniques to control flightpath direction during extreme microburst conditions.

"Watch your speed."
"You're gonna lose it all of a sudden; there it is."
"Push it up; push it way up..."

In some ways the storm looked like a typical rainshower beneath a 6,000-foot cloud base. Those individuals who were fortunate enough to fly through it said it was like hitting a wall of water with near zero visibility. As for the others, it was a nightmare they would never live to tell.

Delta Flight 191 slammed into a field about 1,400 feet north of Highway 114 while on approach to 17L at Dallas/Ft. Worth International. The left engine separated after hitting an auto. The massive L-1011 then yawed left and hit a water tower left of extended runway centerline. The mangled metal and impact fire resulted in 135 deaths.

During the approach, the aircraft penetrated a powerful **microburst-induced windshear** spawned by a fast-building convective storm. The headwind increased from 10 knots to a maximum of 27 knots in 5 seconds. Vertical winds of +1,500 fpm to −3,000 fpm followed. The powerful L-1011 was in a severe downflow for 20 seconds. Tailwind velocities reached approximately 40 knots.

At about 600 feet, the aircraft was above glideslope with a 13-degree deck angle and airspeed slightly below the reference speed of 137 KIAS. Within 5 seconds, the deck angle went to −8 degrees as reference speed was attained along with a descent rate in excess of 3,000 fpm. The steep descent angle continued until impact. Indicated airspeed at this time was approximately 169 knots.

Factual reports provided by NASA Ames Research Center indicate that this microburst contained a complex series of multiple vortices, rapid wind reversals, and intense updrafts and downdrafts within the main structure. This information leads us to believe that a microburst can be far more complex and dangerous than earlier investigations revealed. It is inevitably a matter of time before this deadly atmospheric disturbance will again precipitate future catastrophes in military and civil aviation.

Flight crew training on this topic has been extremely deficient or virtually nonexistent. We have not been trained in the most fundamental sense in the physical recognition of the phenomenon, its origin and associated characteristics. We're penetrating regions we have absolutely no right in doing. Once there, we're failing to recognize, through cockpit instrumentation, the impending danger. If we react, it's often too late. And even then, we fail to do what might have prevented a major aircraft loss and catastrophic loss of life.

The purpose of this article is to present various aspects of the microburst threat to (1) enhance flight crew understanding and increased awareness of the phenomenon, (2) provide a fundamental aerodynamic explanation and (3) present some techniques to control flightpath direction of an aircraft encountering extreme microburst conditions. The objective is to influence certain decision-making processes and develop instinctive, positive responses on the part of the flight crew.

Glossary

fpm	feet per minute
KIAS	knots indicated airspeed
km	kilometer
JAWS	Joint Airport Weather Studies
VSI	vertical speed indicator
HUDS	Heads-Up Display
AOA	angle-of-attack

A deadly disturbance

A MICROBURST, the smallest and most lethal of the downburst family, is an intense, highly-localized downward atmospheric flow. It is classically spawned by convective parent clouds, occupies a small geographic area and has a life span of only a few minutes.

During its descent, a microburst is about 1km wide. As it approaches the

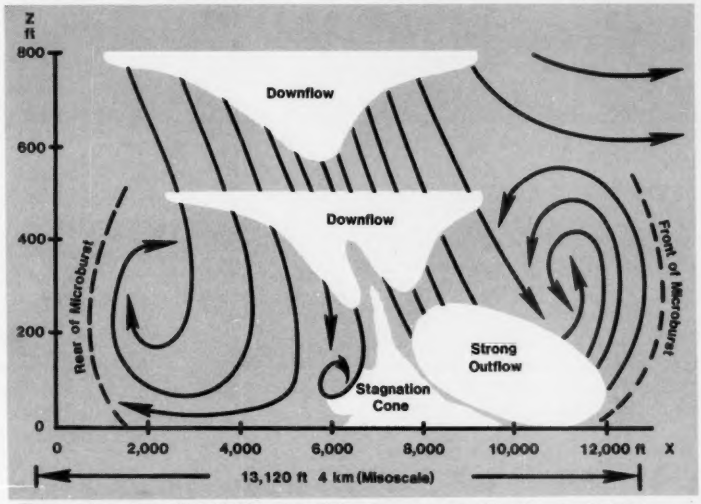


Figure 1 (courtesy of Dr. T. Theodore Fujita, Department of the Geophysical Sciences, The University of Chicago), shows the vertical cross section and dimensions of microburst winds. A macroburst, with its similar wind, is a larger downburst with horizontal dimensions in excess of 4km or 2.5 miles.

earth's surface, it diverges horizontally in an asymmetrical pattern of violent, powerful wind radiating out to 4km in diameter and upward to approximately 1,000 feet in height.

Data amassed during the 1982 Joint Airport Weather Studies (JAWS) project documents maximum downdraft velocities of 2,000 fpm at 1km above the surface. However, velocities may be in the range of 2,000 to 5,000 fpm. These velocities decrease in intensity as they near the surface, going, theoretically, to zero. At some height above the earth, the downward energy is transferred laterally, generating outflow wind velocities from 20 to 100-plus knots. As the lateral winds move outward from the high-pressure stagnation core that forms at the center of the microburst, their velocities first increase and then gradually decrease.

According to Dr. John McCarthy, senior research scientist with the National Center for Atmospheric Research, a microburst of average intensity can produce a headwind-to-tailwind differential velocity of approximately 50 knots; the strongest measured during the JAWS project generated differentials in excess of 90 knots. (Since then, the most powerful microburst on record occurred at Andrews Air Force Base in August 1983 only minutes after Air Force One landed. Its peak lateral wind velocities varied from 84 knots on one side to 130-plus knots on the other—for a differential in excess of 200 knots in less than 2½ nautical miles! There is no reason to believe that there have not been others of equal or greater intensity.)

Research indicates that a microburst may induce lateral wind velocities greater than the velocity of its downflow. Dr. Fujita attributes this unique occurrence to the stretching deformation of its horizontal vortex

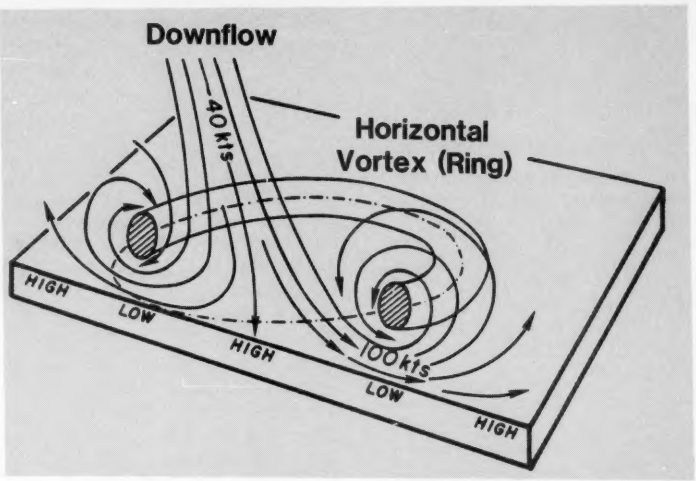


Figure 2 (courtesy of Dr. Fujita) is a simplified model of the horizontal vortex ring in a microburst with its associated high- and low-pressure distribution.

ring. The result is an associated low-pressure region with its corresponding high-velocity lateral airflow.

After the diverging flow first hits the earth's surface, a doubling of its intensity to maximum occurs within 5 minutes. Maximum intensity may then be sustained up to 5 minutes before dissipation. During this time, should a microburst be accidentally encountered and successfully negotiated, there exists no assurance that the next aircraft will be able to safely traverse it.

NOTE: Microbursts often develop in groups or families of two or more, so the presence of one is a signal that others are likely to occur.

The microburst threat exists to varying degrees in the continental United States and throughout the world. It occurs in a variety of meteorological conditions, but it is classically spawned by convective clouds.

Convective clouds are characterized by unstable moist air, extensive vertical development and intense updrafts and downdrafts. Cumulus, towering cumulus and cumulonimbus are examples of convective clouds which may spawn a microburst. According to Dr. Fujita, only about 1 percent of the rainstorms associated with such systems will produce a microburst.

There are two basic types of microbursts, wet and dry, and both are relatively common. The **wet microburst** is associated with heavy rainfall at the surface. This type may be present when any of the following conditions exist beneath a convective cloud base:

- Torrential rain
- Isolated rainshower
- Defined rainshaft
- Wall of frontal rain
- Horizontal vortex ring
- Variable, gusty winds

WARNING

Do not attempt a takeoff or approach through an isolated shower or rainshaft associated with torrential rainfall. A low-altitude windshear condition could develop that may exceed the aerodynamic capability of your aircraft.

The other type, a **dry microburst,** may contain little or no rain at the

surface. It is often associated with innocent-looking virga beneath a high-altitude convective cloud base and usually develops in dry climates such as that of the western United States.

Virga is an often-beautiful phenomenon resulting from the evaporation of precipitation as it falls through the atmosphere. During the evaporation process, the already-cold downdraft is further cooled, increasing its density and accelerating it further. Current investigation indicates that some microbursts may be induced solely by this type of evaporative cooling of raindrops under certain atmospheric conditions.

The downflow of **dry microbursts** may be nearly impossible to see. However, the presence of any of the following phenomena could indicate the presence of a potentially dangerous condition:

- Precipitation shaft aloft
- Virga beneath cloud base
- Variable, gusty winds
- Localized blowing dust rings

Microbursts are extremely difficult to detect. **Conventional weather radars cannot be relied on as a means to detect and avoid microbursts** because they may not always occur in regions of intense radar return or contour.

WARNING

Low-altitude windshear alert systems currently installed at some major U.S. airports cannot be entirely relied upon to detect microbursts since some are small enough to pass between the present sensor spacing. It is imperative that the flight crew use all available information when making a determination whether or not to proceed under possible hazardous conditions.

Microbursts may, in fact, develop in areas that appear on the radar screen as benign or unintimidating. In fact, the JAWS project revealed that no correlation exists between the intensity of radar echoes and microburst development. Therefore, as aviators, we cannot make decisions based entirely upon airborne radar which detects rain but not wind. (An array of doppler radars would be the most successful means within the present technical capabilities of detection since they are able to locate convective air movement with or without the presence of rain.)

A vast percentage of microburst-related mishaps and incidents have occurred during June, July and August between the hours of 1400 and 1900. In every case, thunderstorms or intense convective activity was in the area. Almost without exception, there existed some known precursor event or warning of impending danger. Unfortunately, the human communicative process often failed, and crucial, real-time information was not realized or passed to the mishap aircraft. So, if you observe or encounter indications of impending danger, be specific and **C-O-M-M-U-N-I-C-A-T-E. Microbursts are such short-lived events that the dissemination of real-time information is crucial. Your input could be what it takes to prevent a devastating encounter in the critical space-time window.**

An example of proper pilot reporting should include the phrase **"Windshear Alert"** plus:

- Aircraft type
- Thrust requirements
- Effects on aircraft
- Airspeed loss/gain
- Phase of flight
- Weather conditions
- Altitude
- Turbulence
- Location

Windshear can be associated with frontal activity, strong surface winds, low-altitude jet streams, temperature inversions, sea breeze fronts and unique topographical conditions. However, thunderstorms and intense convective activity present the greatest danger.

Next month, "Part II: Aspects of microburst flight."

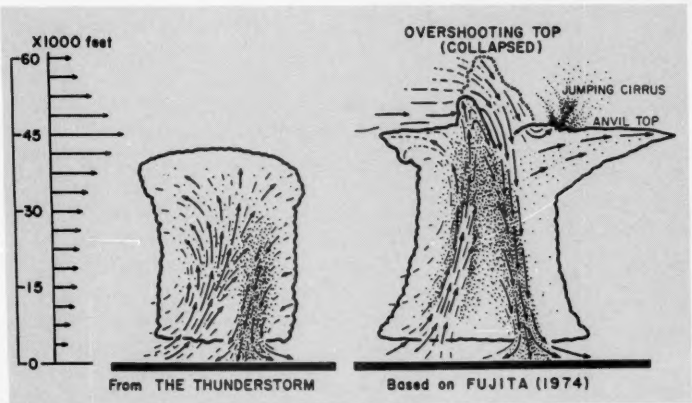


Figure 3 (courtesy of Dr. Fujita) is a classical illustration of the intense updrafts and downdrafts associated with thunderstorms. Dr. Fujita postulates that when an overshooting top rises and then collapses rapidly, a microburst can form on the downwind side of the dome. The downdraft may be fed by fast-moving stratospheric air above the anvil as the overshooting top collapses. Microbursts also may be induced by isolated showers from relatively small, rapidly expanding, but relatively short-lived parent clouds. Lightning and thunder may or may not be present. Supercell thunderstorms are inducers of strong tornadoes and microbursts.

FLIP ACCOUNT MANAGERS

What is FLIP? How do you obtain FLIPs and maintain a FLIP account? This article answers these and other frequently asked questions about FLIP accounts. It is intended to serve as a quick ready-reference to assist FLIP account mangers.

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A RECENT REVIEW OF some flight information publication (FLIP) account holders and the problems encountered by them has highlighted to the Aeronautical Services Office (ASO) the importance of a good unit FLIP account manager.

Without current and adequate FLIPs no unit can safely complete its mission. Working closely with many Army account holders has revealed that commanders put little emphasis in assuring that the FLIP account managers are knowledgeable and that FLIP accounts are monitored and maintained. There are many things misunderstood concerning these accounts.

Contrary to popular belief, the sky does not open up and allow pubs to fall into place simply because you have many aviators. Neither is each pilot authorized his or her own set of flight publications. Therefore, this article explains what FLIP material is and how FLIP accounts are managed. It also answers some often asked questions and explains where you can receive help if needed. While this information is available in the Defense Mapping Agency (DMA) Catalog of Maps, Charts and Related Products, part I, Aerospace Products, hopefully this article will be retained for future reference and assist new account managers as a quick reference.

The DMA Aerospace Center, St. Louis, MO, provides all of the military services with all publications for flight planning, en route navigation and terminal procedures. These publications are commonly referred to as FLIP and include planning documents, the Flight Information Handbook, En Route Supplement, En Route High and Low Charts, Wall Planning Charts, and High and Low Terminal Procedures.

In addition to the FLIPs, DMA Office of Distribution Services in Washington, DC, provides a list of materials called FLIP Related Products. These include tactical pilotage charts, joint operations graphics-air, operational navigational charts, visual flight rules (VFR) terminal area charts, VFR sectionals, foreign clearance guides, Federal Aviation Administration handbooks, Federal Aviation Regulation parts and DMA catalogs. FLIP accounts and related accounts are controlled at different locations, so they have different account numbers. *Refer to the FLIP account number when inquiring about your account.*

Each account must be verified annually. Many account holders are not aware of the importance of the FLIP and FLIP-related surveys, and when they are received they

merely sign the computer printout, make a statement such as "no changes" and return them to the U.S. Army Air Traffic Control Activity, Aeronautical Services Office (USAATCA) and sometimes to DMA in hopes that everything goes well. Several weeks later when they receive a maintenance page, they discover that they are receiving too many of some publications and not enough of another. Then a request for change is submitted.

Your printout (both the survey form and maintenance page) is a complete listing of the products being shipped to you each cycle change. This printout must be reviewed for accuracy, and corrections should be made immediately. If at the end of the cycle, you find that you have a number of publications to discard (and this happens continuously), or if you run short of the same publications each cycle, you need to make some adjustments to the account. The survey affords you the opportunity to accomplish this, but you don't have to wait until it is survey time to make corrections.

It is just plain good management technique to plan your usage and make adjustments once a year. A periodic review of your account will allow you an excellent opportunity to prevent expensive waste that results from getting publications that you don't need.

If you need help determining your quantity levels, review section 4, Basis of Distribution Tables, and section 5, Basis of Issue Tables, of the DMA Catalog, part 1, volume 1; or, call your ASO FLIP account manager at **AUTOVON 284-7773/7774 or Commercial (202) 274-7773/7774.** This information is included in the revised Army Regulation 95-14, "Army Aviation Aeronautical Information," which will be available by the third quarter of fiscal year 1986. All unit FLIP account managers should obtain a copy of this regulation for reference.

After submitting your updated survey form, the account will be brought up to date and a copy of the FLIP address and requirements maintenance page will be returned to you, which confirms your mailing address and your account levels. Now, your only worry is the timely arrival of your updated publications.

All flight publications have a limited use period. Flying without current flight publications is hazardous and may contribute to violation of flight rules and procedures. All flight publications should arrive at least 1 day prior to their effective dates.

If you have not received them, first look around the mailroom, maintenance office, supply room, etc. FLIP products have been found in some of the strangest places. If this search is fruitless, determine the mode of transportation and normal arrival point for your FLIP, i.e., surface transportation to the transportation officer or air to the post mailroom. Contact the transportation office or postal officer and request a search for the product. If these efforts are still unsuccessful, contact other nearby users to determine if they have received their publications.

If publications have not been received by close of business the day prior to the effective date, contact the ASO FLIP accounts manager at **AUTOVON 284-7773/7774 or Commercial (202) 274-7773/7774** and explain your situation. Missing shipments of FLIP related products should be handled in the same manner. These problems will never be fixed if they are not reported. We must document each case in order to fix it.

In this period of high mobility, many units are moving or being self-deployed for training in areas outside their primary areas of operation. Units normally don't have sufficient publications to support the training, nor to deploy the aircraft. In such a case, one-time shipments of specific publications are required. Many times units know well in advance that a deployment is planned. If time permits, submit your request with as much lead time as possible to allow for processing the request and for shipping your publications. Stockage is not necessary to support training exercises. Routinely, publications can arrive within 3 weeks. Emergency shipments are handled in 2 to 3 days and can be shipped overnight in a serious emergency. These types of responses are discouraged, unless absolutely necessary, due to the high cost involved with shipment.

One last suggestion: FLIPs are issued based on assigned aircraft. There are insufficient numbers to allow each individual aviator a personal set of FLIP products. Some units have prepared mission flight kits in sufficient quantities to support their missions. These kits are issued to the crew of that particular mission and upon completion of the flight, the crew returns the kit to operations. This is proving to be a successful and cost-effective arrangement.

USAATCA-ASO is here to assist you in the acquisition of necessary flight publications. If you have a problem or need help in setting up your account, or if you have difficulty in establishing needed quantities of publications, please feel free to contact your ASO FLIP account manager.

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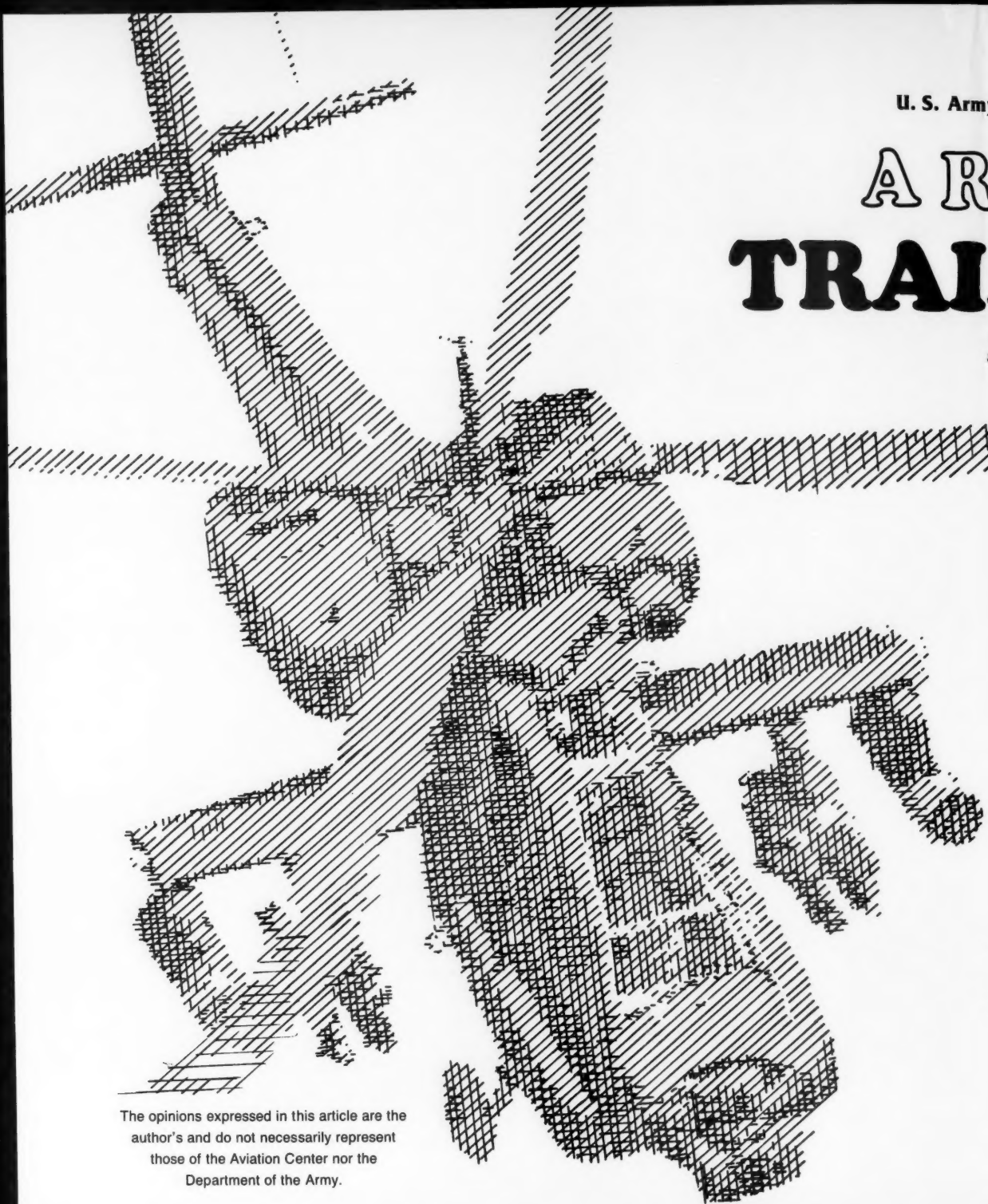

The opinions expressed in this article are the author's and do not necessarily represent those of the Aviation Center nor the Department of the Army.

ny aviators are presently receiving the finest flight training possible, but is

RMY AVIATION
NED TO FIGHT ?

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New Systems Training and Simulation
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Directorate of Training and Doctrine
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Fort Rucker, AL

MILITARY HISTORY confirms that successful armies train as they intend to fight and fight in the manner they are trained. Great strides have been made in recent years pushing Army Aviation training and other fighting skills. But to date, we do a much better job flying VIP (very important people) missions than we do flying tactical missions.

In past decades, U. S. military strategy was based on a philosophy of attrition. As long as manpower and asset superiority can be maintained, this conflict strategy can be very effective.

In the 1970s our numerical superiority over the threat forces had dwindled. With this massive shift in the balance of power, a new strategy for U. S. forces has evolved. *Maneuver strategy* now is seen as the key for numerically inferior armies to multiply their combat power.

This ability to squeeze every ounce of combat effectiveness from your limited assets has a price. That price is paid by training. For maneuver tactics to work efficiently, each unit and every soldier must be able to operate alone or together in a multitude of roles with the competence and precision of a surgeon or as a team of surgeons.

One day, on a single ship mission, a UH-60 Black Hawk helicopter crew must possess the ability to stand alone, to function with laser accuracy while constantly analyzing the situation and reacting properly to an ever-changing tactical environment. The next day in a battalion air assault mission, that same Black Hawk crew must function in a larger, even more complicated effort—much as a single gear in a fine Swiss watch.

For various reasons, U. S. Army aviators enjoy the finest flight training available. Many of our rotary wing aircraft are absolutely the best machines modern technology can provide. Our flying experience and aviator abilities are much envied by friend and foe alike. However, like any organization with such an important and massive job, we do have some weak points. Unlike the Warsaw Pact countries, we enjoy the benefits of critical self-examination which lends itself to a more rapid ability to improve. The goal of this article is to share my concerns and examine one area that could use some more attention—Army Aviation *tactical* training.

For the sake of clarity, the remainder of this article is structured with the identification of some areas in our current training programs, accompanied with a discussion of each. These topics are followed with some suggestions and ideas for improvement.

With the immenseness of our daily peacetime flying tasks, many of us have difficulty identifying that *one overall reason* for our existence as Army aviators. It seems difficult for most of us to step back from the day-to-day tasks of Army Aviation and put a finger on that one big item. In many new publications, our commanders have done it for us. All we have to do is look and take a few minutes for it to sink in.

FM 25-1, "Training," says it best—"The Army's mandate for training is simple and compelling. The Nation must have an Army ready for *combat.*"

We have just identified, in my opinion, the major culprit in our peacetime training programs. "We don't think like fighters." Walk up to the line pilots or platoon leaders on

General Subjects

Principles of Effective Writing: 25 hours

Military Law: 4 hours

Military Briefings: 17 hours

Drug Abuse: 2 hours

the flight line and ask them what their jobs are, and why. Their primary topic usually is not "preparing to fight." In all probability, you will get a clean, technical description of the task at hand—"the mechanics of flying."

If you can get them to talk about combat, it will be in very detached terms. The feeling I get from most folks is, combat is somehow not a reality; it wanders through our thoughts in only a mystical, unclear sense. For many years, we have sanitized our terms and cleansed our thoughts of combat. The trauma of a past unpopular war could be blamed, but maybe we have gone far enough in making our mission more presentable.

At some point in time, we must again be brutally honest in the descriptions and discussions of what we do; if not with the world, at least with ourselves. A statement like "neutralizing the enemy" can mislead soldiers and civilians alike into thinking that killing the enemy is a safe and tidy business done by someone else. This problem of a peaceful, euphoric mind-set by Army aviators worries me most. I truly believe it is also responsible for most of the following concerns I elicit in the remainder of this article.

With all the efforts to get the "train to fight" message across, contradictions that need our attention still exist.

Priorities For Training

By virtue of the written word, we seem to have difficulty communicating an equality of priority between fighting and flying skills. I can see proof of this statement is needed. AR 95-1 states that an annual evaluation of an aviator's proficiency and readiness will be given; the annual aviator proficiency and readiness test (AAPART). It will consist of:

- Written examination
- Hands-on performance test consisting of a standardization and instrument flight evaluation.

The problem in all of this is that an aviator's study and work priorities have been set in bold type by AR 95-1. There is no realistic argument that an AAPART adequately tests an aviator's *combat* abilities.

Simply put, you don't fail an AAPART if you don't know how to fight, just as long as you can fly your aircraft and talk tactics in a very superficial manner. Remember—this is the only yearly *individual* test of proficiency mandated by AR 95-1. Let me summarize and validate this point by one question: When your AAPART is near, what do you study? Instruments or tactics? No less important is the subliminal conditioning that takes place in a pilot's *answer book of his flying duties, the aircrew training manual (ATM).*

Example—FC 1-212, the UH-60 ATM, lists 72 aviation tasks. Of those 72, 57 can be taken to a civil aviation job when you retire, and 15 must be taken strictly to the battlefield. This isn't even the bad news! A comparison of tasks is even more revealing. Three pages of indepth description are provided to perform an instrument takeoff (ITO), which is one physical event in flying (#1075), versus a one-page (four-line) description for operating six separate pieces of aircraft survivability equipment (ASE) (#1095). Let's go one more step—the quality of the information provided to the aviator: #1075 ITO gives a good description on just how to do the job versus #1095 covering use of ASE, which lists equipment that is not even aircraft survivability equipment (KY28/KY58 APX100), then fails to list adequate references needed to successfully employ the systems in combat (i.e., threat/evasive maneuvers).

One last point—the ITO is a mandatory pilot evaluation maneuver required of all UH-60 pilots. The ASE task is a commander's discretion task.

Another important note to surface in the publication vein is the lack of "how to fight" information for the aviator. If you wanted to know the *whys* of instrument flying, you can go to a great publication for an indepth explanation—the Airman's Information Manual. If you want to know the *whys* of an evasive maneuver or a similar fighting skill, you are going to have some trouble. The ATM can tell you what the given evasive maneuver is, but it doesn't provide an understanding of *why* it works. I have found most pilots don't have much faith in them. On the battlefield, confidence is prime.

I have mentioned a subtle communication of priorities that takes place in our regulations and publications, but it doesn't stop there. The last two areas I'll present seem to share this ability of conveying those somewhat misleading messages. These are our institutional programs of instruction (POIs) and unit tactics/threat training. Institutional POIs tend to target nonfighter skills as priority. I think it is important that initial entry rotary wing (IERW) training not be included in the examination of this area of concern. With 1,000 hours as an IERW instructor pilot, I firmly believe that flight school is the place to make safe pilots, not

Threat Subjects

Soviet Tactical Doctrine: 3 hours
Unit NBC Training: 1 hour
Aircraft Survivability Equipment: 1 hour
Soviet Threat to Army Aviation: 1 hour

tactical wizards. After a few years, when the aviators are secure as adequate flyers and they return for their advanced course, then would be the ideal time to hone their battlefield knowledge. A list of subject/hour comparison found the warrant officer advanced course POI No. 2-1-C-32 can best demonstrate how we train our warriors to fight (refer to accompanying figure). If you are thinking what I am thinking, we both see a good indication of why our pilots may write a bit better than they fight.

Unit Tactics/Threat Training

Each Army Aviation unit has personnel requirements for school trained instructors and safety officers. These folks are extremely important if we are to maintain our assets for combat, but few of them are able to structure realistic threat training. Each unit identifies a threat officer, but that unit's training is only as good as the young WO1 threat officer's self-motivation allows.

From unit to unit, threat training programs vary widely in subjects taught. This is, in large part, due to the lack of schooling for our threat officers. These hard working people can only teach what they can learn through self-study, without clear guidelines, using books and slides scrounged from other units. The most likely outcome is a unit full of experts and none agreeing with the other. With this lack of a respected authority in each Army Aviation unit, we often structure unrealistic tactical flight training missions. In fact, many of our missions go with absolutely no threat information provided in mission briefings. When presenting a threat, it takes no more time to put those map symbols in the proper place and sequence than it does to put them in the wrong ones, and the enhancement of realism is tremendous. This process does, however, require someone with knowledge and training.

It is, I guess, time to step down from my soapbox and provide some solutions. When preparing these solutions I will be working from a given base of understanding: that a clear mandate exists for our pilots to be tactically proficient as well as technically competent.

Solutions

• Reevaluate our AAPART standards and better align them to reflect fighting skills as well as flying skills. While working these requirements, care should be taken to ensure the proper balance of fighting/flying skills are tailored to each military occupational specialty. This move will send a clear message to aviators of where they should spend their study time. An added benefit will be a subtle jolt to that ever-present peacetime mindset. Preparing to fight can take one more step forward in becoming a *now* reality. Hopefully we are nearing that status. An Aviation Center review of this article points out that, "The operator's manual, AR 95-1, and the ATMs have started to reflect the tailoring of the fighting skills to the training programs outlined in the unit. This was mandated in 1983 at the U. S. Army Aviation Policy Committee Meeting that told the field the training emphasis was on tactical training." I welcome these decisions and actions. This article can only help further this emphasis.

Once the clear realignment is presented in AR 95-1, each ATM can be updated and be individually tailored to meet those mission requirements. Again, the side benefit would be another message of *train to fight.*

With the clearly defined requirements and the growing mood for *train to fight,* we should provide the training. A reconstruction of our advanced schooling is a must. Tactical skills should be emphasized. At the very least they should share the priority equally with administrative skills.

• Develop a warrant officer threat course at the Aviation Center that teaches a standardized Army approach to Warsaw Pact tactics; assign additional skill identifiers and track those aviators. The Aviation Center also could provide reference material and visual training aids. Simply put, let's give our Army Aviation units an authoritative aviator professional in threat subjects. With the introduction of a school-trained professional, training scenarios reflecting accurate threat representations would fall into place.

With a close examination of the solutions I have shared, one can note that each lends itself to the other. Every step would be helpful on its own, but all implemented together would be ideal.

I am sure my concerns presented in this article can be cussed and discussed, depending on your perspective. Our leadership can only do so much. The real answer lies with the soldiers in the trenches. We must start thinking like fighters and influence our own training. One thing I am sure we can agree on, we are all soldiers with a mission to fight. When called to combat, *we must do well!*

It's 0730 at Goodflight Army Airfield. You've already finished your morning cup of coffee and wandered into flight operations to look at the mission schedule. You notice your name in bold grease pencil scheduled to fly later in the week, and the unit instrument flight examiner is listed as pilot in command.

"Training flight," you say to yourself, "that's great."

As you continue reading down in the remarks section of the board, you see it; nervousness overcomes you for a split second as your thoughts race through your mind: stand flight eval/instrument flight evaluation. *My annual aviator proficiency and readiness test (AAPART)? That's it. That's all it takes and then here it comes . . .*

CHECKRIDE TERROR

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Standardization Officer
HQ 421st Medical Company (Air Ambulance)
APO New York

NOW, WAIT a minute. Army aviators know, according to Army Regulation 95-1, that they must successfully complete the AAPART hands-on portion, which for Active Duty aviators will be administered in the 3-month period ending on the last day of the birth month. Everybody knows that, so what's all the terror business? It's no surprise.

I knew it was coming up, that's true. But, with all my additional responsibilities, I forgot to really study up. I just got back from temporary duty, then took leave on top of that; I can't possibly be ready for a checkride. The commander has me working on that special project, and I've got to get the plans together for the unit's Army Training and Evaluation Program next month. Can't we reschedule my checkride? I'm sure he'll grant me a 30-day waiver. Most instructor pilots and instrument flight examiners have heard all these reasons and probably many other variations.

No matter how valid the reason, no matter what the mitigating circumstances, everyone knows when their birth month is, and the flight school instructor pilots made sure everyone could count to three before leaving. That means pilots can always plan on the same timeframe each year when they need to polish their aviation skills as brightly as possible. Even the "old crusty" pilots, those who have passed more evaluations than others have flight hours, have a different feeling about things come AAPART time. Unit trainers, instructor pilots, standardization instructor pilots and instrument flight examiners are subject to the same kind of human feelings that other pilots have during flights "for the record." To different degrees, trainers also get that feeling once a year. That little feeling takes on many different names: nerves, the jitters, the "checkride blues," or more commonly, "checkitis."

Checkitis has probably been experienced by every aviator at one time or another. Orville Wright possibly felt a touch of it come over him at Kitty Hawk. To some, that feeling is a positive reminder to hone skills and study habits to be at one's peak. But, to others that feeling is a dreaded curse that turns professional, highly trained aviators toward self-doubt and saps the confidence they need to perform at their very best.

What can be done?

For starters, remember that checkride is an ugly word. The person administering the AAPART was instructed to be a teacher, coach and evaluator. That's what you're doing, you're being administered an *evaluation* to determine your level of proficiency. That must remain first and foremost in your mind as you approach the preparation for your AAPART. Of course, every instructor pilot, standardization instructor pilot and instrument pilot and instrument flight examiner has a personal approach, but their basic functions are the same: *teacher, coach, evaluator.*

Commanders are responsible for their aircrew training programs and are assisted by the unit evaluators, instrument flight examiners, standardization instructor pilots, instructor pilots and unit trainers. Together they are responsible for developing and maintaining the entire unit's aircrew training program. They must consider in its development the many facets that cover all aspects of the unit mission, the commander's tasks selected to support that mission, sufficient training flights, and an evaluation program designed to validate this training program.

Your instructors know you, they know the way you fly, and most of your strengths and weaknesses. However, *you* know your skills the best. Who better than you can decide in which areas you need to intensify your study? When needed, the assistance of your instructor pilot can always be sought. He or she can help you polish up those weak areas or explain something you don't quite understand. Use your instructor to enhance your study, not to design it for you.

Just as you would never purchase a calendar with only 3 of the 12 months, you should not stop your own study habits, nor training requirements, just because your AAPART isn't until next year. Army Aviation today can't stand still and expect to place highly skilled flight crews in the battle area without remembering this. Don't "Red X" yourself by putting the books away until next month or longer. Stay hungry to learn new things and reinforce the old. Be personally dedicated to understanding as much about the aircraft as possible *and* the regulations that govern its use and employment. The knowledge gained, added to the proficiency you maintained, can save your life and protect the crew that expects your utmost on every flight. This kind of demeanor will aid your ability and

illustration by Charlie Hover

confidence so you can be at your best when confronted by a stressful situation, or during an evaluation.

Instructor pilots are continuously asked by fellow aviators if they have a study guide they can use. Publication of the aircrew training manual (ATM) in the late 1970s, and the constant effort to keep it current, provide the Army Aviation community with an excellent source of reliable information. Every unit in Army Aviation has at least one of these study guides, the ATM. Your instructor pilot uses it to administer the AAPART, making it the one study guide best suited for your needs. Use chapter 7, Pilot Evaluation or Pilot Instrument Evaluation, to assess your areas of the AAPART that (as discussed above) need strengthening. When the area doesn't appear specific enough (i.e., local airspace usage) ask your instructor pilot or instrument flight examiner to suggest specific areas of study, *but don't wait until you read your name on the mission schedule.* Plan ahead, remember to throw away that 3-month calendar and not wait for an evaluation to perk your curiosity.

Finally, never forget the tremendous responsibility placed upon you as an Army aviator to continuously strive to be "Above the Best" and to always refine your skill. Take a personal interest in the quality and quantity of your aviation training. The instructor pilots in your unit will do their best and do their jobs well and professionally; make sure you do the best you can and dc your job! It takes the combined efforts of a continuing aircrew training program and an individual commitment toward self-improvement to overcome checkride terror.

Plan study habits around the 12-month calendar, then take the personal steps necessary to guard against becoming the type of aviator with all the questions and become the kind with most of the answers.

Boredom Interrupted by Fear

continued from page 15

Because the cause of the "emergency" is so anticlimatic let me now share the lesson learned. Crew coordination was effective, training in the operator's manual emergency procedures had been adequate since it turned out not to be a dash 10 emergency, but had we been prepared to handle an unknown emergency? Hadn't I read of other humorous, almost ludicrous situations in *Flightfax* when an erroneous identification of an emergency had been made? Had I really learned from those stories I read? Hadn't I visualized while reading those stories (sight, sound, touch, smell and taste) first the separation of a portion of the leading edge of the main rotor and second, determined a proper response, based upon the numerous occurrences of late? Perhaps I had. How else after 1,700 flight hours accumulated over 15 years can I explain the ability to function during my moment of stark naked fear.

Make your "moments" happen on the ground as you visualize and respond to *Flightfax* stories, it makes those in the air much more palatable.

AVIATION PERSONNEL NOTES

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Avionics Becomes Part of Aviation Branch

Career Management Field (CMF) 28, Aviation Communication-Electronic Equipment Maintenance, was officially transferred from the U.S. Army Signal Corps to the Army Aviation Branch on 1 October 1985. The transfer was the result of a recommendation by a U.S. Army Training and Doctrine Command (TRADOC) Study Group which reviewed CMF 28 in early 1984. The transfer was accomplished in July 1985, when MG Ellis D. Parker, chief of the Aviation Branch, and MG T.D. Rogers, chief of the Signal Corps, signed a Memorandum of Agreement (MOA) outlining the move.

The MOA detailed a three phase plan to transfer proponency, training development and training from Ft. Gordon, GA, to Ft. Rucker, AL, over the next 7 to 10 years. The *first phase* was completed in October 1985, when proponent responsibility for all avionic military occupational specialities (MOSs) was given to the Aviation Branch.

Phase II will occur on 1 October 1986, when the individual training analysis and new systems training development is moved to Ft. Rucker. Changes have already been submitted to TRADOC outlining the personnel, equipment and budget items which will show up on Ft. Rucker fiscal year (FY) 1987 documents.

Phase III will take a few years to accomplish. Buildings must be designed and built, environmental impact statements must be written and funds must be allocated. A target date of FY 1992 or 1993 has been set, but the current budget cuts may delay the move of the training.

The following MOSs make up CMF 28:

35K—Avionic Mechanic is responsibile for all aviation unit maintenance (AVUM) for all Army aircraft.

35L—Avionic Communications Equipment Repairer is located at aviation intermediate maintenance (AVIM) and repairs frequency modulated, ultrahigh frequency, very high frequency, high frequency radios and intercom units.

35M—Avionic Navigation and Flight Control Equipment Repairer is also located at AVIM and repairs automatic direction finders, localizers, stability augmentation systems and other stabilization systems.

35R—Avionic Special Equipment Repairer, another AVIM asset, repairs IFF (identification friend or foe), weather radar, radar altimeters, tactical air navigation and inertial navigation equipment.

35P—Avionic Equipment Maintenance Supervisor can be found at both AVUM and AVIM units. As the capper MOS for CMF 28, the 35P is responsible for supervision, training, quality and production control of the avionic shops.

The transfer of CMF 28 added 1,638 enlisted authorizations to the Aviation Branch. In addition to CMF 28 coming to the Army Aviation Branch, MOS 93D, Air Traffic Control Systems Repairer, was also transferred from the Signal Corps into CMF 93 (Aviation). 93D is a consolidated MOS which joined the former 26D, Ground Controlled Approach Radar Repairer, and additional skill identifier (ASI) B4, Navigation Aids Repairer, into one MOS. Soldier reclassification occurred in March of this year. Transition training will be conducted at Ft. Gordon based on availability of seats in the 93D20 (follow-on) course. 93D brought 343 more enlisted authorizations to the Aviation Branch, raising the total to 21,990 enlisted authorizations.

The 16 January 1986 edition of AR 670-1 changed the brass worn by CMF 28 personnel from Signal Corps to Aviation Branch, effective 18 February 1986.

A hearty welcome is extended to the newest members of the air assault team—the soldiers of CMF 28, our *avionic maintainers.*

NOTE: All avionic personnel holding MOS 35K, 35R and 35P are required to have a secret security clearance.

AVIATION PERSONNEL NOTES

Those who do not have a secret clearance by April 1987 face the possibility of involuntary reclassification. Contact your personnel staff noncommissioned officer or S2 on the procedures for applying for your clearance. The requirement appears in the April 1986 update to AR 611-201.

Just The Facts

Every year the Military Personnel Center's Central Personnel Security Clearance Facility (CCF) at Ft. Meade, MD, grants, denies or revokes 250,000 security clearances.

With the increased interest about the clearance process, we have put together answers to the most asked questions at CCF—all you ever wanted to know but were afraid to ask about security clearances.

How can I request the status of my security clearance?

Your security manager is the link between you and CCF. The security manager is the S2 at battalion and brigade, the G2 at division level, and a special staff officer at the installation or post headquarters. The security manager corresponds with CCF by submitting a DA Form 5247-R, Request for Security Determination. If a significant amount of time has passed and CCF has not completed the clearance action, the security manager may trace the status by submitting a legible copy of the original DA Form 5247-R with "tracer" marked diagonally in large letters across the face of the form.

I need expeditious action on my security clearance because I am applying for a service school or I need to reenlist, and my security manager is reluctant to call CCF for special action. How can I get help?

CCF's Customer Assistance Branch has the mission of "handling the crisis." Customer Assistance Branch can expedite cases within CCF and can provide policy guidance to the security manager. The branch cannot, however, make an investigation run any faster, as these are conducted by the Defense Investigative Service, a separate Department of Defense (DOD) agency. If you have a legitimate problem, we encourage your security manager to call. If he will not take action, your chain of command can energize him.

If I admit my experimental use of marijuana when I enlist in the Army, will I be denied a military occupational specialty (MOS) that requires a security clearance?

If preservice use of marijuana was experimental (occurring not more than a few times for reasons of curiosity, peer pressure, etc.), you appear to have a stable life style, you state your intentions not to use drugs or controlled substances in the future, and there are no other disqualifying factors, you probably will be considered eligible for a security clearance.

Why does my failure to become a United States citizen reflect adversely upon my eligibility for a security clearance?

When an individual is admitted to the United States for a permanent residence, he or she established a presumption that there has been a change of national allegiance from the native country to the United States. When an individual becomes eligible for citizenship but elects not to become a citizen, the presumption of primary national allegiance to the United States is in doubt.

Why isn't my security clearance on record at CCF?

Documentation of security clearance is the existence of a DA Form 873, Certificate of Clearance and/or Security Determination, in the individual personnel file. In the case of soldiers, this file is the Military Personnel Records Jacket, or as it is commonly known, the "201 file."

CCF assumed the worldwide security clearance mission on 1 October 1978. Prior to CCF, clearances were granted by major Army commands, which did not record the clearance determinations at the national level. CCF documents all final clearance actions in a computer system called the Defense Central Index of Investigations (DCII). The DCII is maintained by the Defense Investigative Service (DIS), the organization that has conducted most of the personnel security investigations on soldiers since 1972. When your security manager requests a clearance from CCF, we must check the DCII for any investigative and security clearance information. We maintain no permanent files or permanent clearance documentation at CCF. We combine the information available in the DCII

with that provided by the security manager to make a clearance determination.

CCF is in the process of documenting pre-CCF clearances contained in the 201 file of Active Duty soldiers in both the DCII and the computer system at the U.S. Army Military Personnel Center (MILPERCEN). Both the MILPERCEN-operated officer and the enlisted master files are being updated with the goal of providing as much clearance information to the personnel managers at MILPERCEN as possible. This information is also being passed to your local command by the Standard Installation Division Personnel System. We hope to be able to replace the DA Form 873 with this automated clearance information in the near future.

Where do I go to obtain help in preparing my letter of rebuttal to the proposed denial or revocation of my security clearance?

Depending on the reasons for the proposed adverse action, help should be requested from your commander, security manager, staff judge advocate, credit counselor or physician. Most important, be sure to address each of CCF's stated reasons for the proposed action. Ask those who are furnishing positive recommendations to do the same.

Additionally, ask your security manager to show you Appendix I of AR 604-5, 1 February 1984. That appendix provides mitigating factors.

Many times it is evident to CCF adjudicators that a soldier has been given no assistance in preparing a rebuttal to our letter of intent (LOI) or has been led to believe that there is no use in replying to CCF. The LOI is most serious. A reply can only help your situation. Loss of a clearance may cause reclassification to another MOS, loss of consideration for choice assignments and schools, inability to be promoted or even separation from the service. If you receive an LOI, CCF is offering you the chance to tell your side of the story.

I'm getting out of the Army soon. I may want to join a reserve or guard unit, or get a government job as a civilian, or a contractor. How long will my Army clearance be good?

Basically, your Army clearance becomes invalid as soon as you are no longer Army affiliated. In most cases, your investigation could remain valid for clearance purposes for 1 year. If during this year, you become reaffiliated with a government agency, that agency may be able to use the investigation to grant you a clearance with that agency. In some cases they will honor the Army clearance without readjudicating the investigative file.

All DOD agencies recognize each other's clearance determinations. Therefore, if you move from service to service in any component (Active, Reserve, National Guard) and there is no break in affiliation to exceed 1 year, any clearance and/or investigation most likely will remain valid.

If however, you seek employment as a government civilian, a SECRET clearance based on a National Agency Check (NAC) or entrance NAC is not sufficient. The investigative requirements are in the National Agency Check and Inquiries conducted by the Office of Personnel Management (OPM). The federal requirement for a position where a TOP SECRET clearance is needed is the full field investigation (FFI). Normally the background investigation (BI) or special background investigation (SBI) used by CCF to grant a TOP SECRET clearance will be honored to meet the FFI requirement. Again, there can be no break in federal affiliation to exceed 1 year.

I'm going to a new assignment that requires an updated security investigation and clearance. How long will it take? Can I report to the new assignment before CCF grants the clearance?

There are no simple answers here, but we can provide you some time lines. Preparation of the request for investigation packet at your location should take no more than 3 weeks plus 1 week mail time to DIS. DIS normally takes an average of some 2 months to conduct an NAC, while a BI or SBI will take 3 to 4 months. If you have been assigned or lived overseas during the last 5 years (BI), or last 15 years (SBI), allow at least an additional 2 months for investigative time. DIS has no agents overseas and must rely on other agencies to conduct the necessary investigative leads. CCF normally completes the adjudication within 1 month. Then allow a week for the DA Form 873 to reach your security manager.

You can report to the new assignment if the gaining command told MILPERCEN that its security requirement was "initiate the security investigation and ship the soldier." In such a case, the only requirement is initiation of the investigation. On the other hand, if the gaining command's requirement is for an adjudicated clearance, the above discussed time factors come into play. In such instances, your military personnel office should not cut orders until your security manager tells them that CCF has completed a favorable adjudication.

You can aid in this process by completing your DD Form 398, Statement of Personal History, in an expeditious manner, providing all required information. Under certain conditions you can be granted interim access while your investigation is being conducted by DIS.

Management of Enlisted Flying Status

Sergeant First Class William A. Kruczek
Internal Instructional Systems Evaluation Branch
Directorate of Evaluation and Standardization
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Fort Rucker, AL

A PROBLEM AREA that is repeatedly identified on both DES Aviation Standardization and Training Seminars and on Department of the Army (DA) evaluations is management of enlisted flying status. This encompasses both assignment to flight status and pay for performance of flying duties.

Military occupational specialty (MOS) 93P, flight operations sergeant, has the responsibility to be thoroughly familiar with Army Regulation (AR) 600-106, "Flying Status for Nonrated Army Aviation Personnel"; part two (Incentive Pay), chapter one (Aerial Flights) of the Department of Defense (DOD) Pay Manual, and to advise the commander on all facets of enlisted flying status.

AR 600-106 prescribes procedures for administering flying status for nonrated Army Aviation personnel who must perform frequent and regular aerial flights while performing their assigned duties. This last statement is quoted from the regulation and is *most important* to remember.

Many units have assigned table of equipment (TOE) positions designated as flying slots that really have no basis for the soldier to be on flight status and to draw flight pay. The soldier should not be on flying status if he is not required to perform frequent and regular aerial flight in performance of his duty. For example, a unit has 16 OH-58 Kiowa aircraft assigned—there are no authorized crewmember/crewchief slots for the OH-58, only noncrewmember helicopter repairman "density slots" and crewmember enlisted aerial observer slots. The unit does not have any school-trained observers to fill the slots, and the commander chooses not to fill the noncrewmember helicopter repairman slots because there is no specific duty for the mechanic to perform while the aircraft is in flight; however, he allows the OH-58 platoon sergeant to be placed on flying status.

In a normal circumstance, the sole justification for the platoon sergeant's being on flight status would be to supervise his subordinates; when there are no subordinates on flying status, there is no justification for him to be on flight status. Another example would be to place a sheetmetal repairman or a hydraulics repairman on flying status to fill one of the authorized density slots as a systems component repairman. Although perfectly legal by regulation, there is no specific in-flight duty that would require either soldier to be on flight status.

Flight status should not be used as an award to recognize a deserving soldier with extra money; flying to qualify for pay is not justification for being placed on flight status. To qualify for flight pay, an individual must perform a minimum of 4 hours per month, and the flying time to qualify for pay must be a product of the duty which required the soldier to be placed on flight status. If a soldier is placed on status as a UH-1 Huey technical inspector, he should get his time on UH-1 maintenance test flights. An exception to this would be a flight conducted for him to train a new technical inspector.

Any time he might fly in another type of aircraft, while authorized to be recorded for his personal records, it is not legal to be used for pay purposes. This goes for all enlisted personnel on flying status, both crewmember and noncrewmember. The "key phrase" to remember is, "...must be a product of the performance of duty...." Flight time gained participating in aerial flights, as a means of transportation, or to transport a soldier so he can perform duties on the ground at the destination or at

points en route, is not justification for the soldier to be placed on flying status.

Another discrepancy commonly found deals with the authority line on the actual flight orders. If the soldier is on crewmember status, paragraph 9, AR 600-106, is the authority; for noncrewmembers, paragraph 10, AR 600-106, applies. The only headquarters authorized to grant an exception under paragraph 11, AR 600-106, is Department of the Army Military Personnel Center, and this is done on a case-by-case basis. This authority is not delegated to individual unit or intermediate commanders.

As previously stated, a member on flying status must perform a minimum of 4 hours per month to qualify for flight pay. However, if he does not meet the 4-hour requirement in a particular month, hours flown in the preceding 5 months which have not already been used to qualify for pay may be used.

If the soldier does not have excess time (flight time in excess of the 4.0 hours required during a particular month *or insufficient to qualify* for a particular month), he may enter a 3-calendar-month period, commonly referred to as a "grace period." The grace period in which flight requirements must be met begins with the first month in which flight requirements are not met. If the soldier flies enough time in the second month to qualify for both months (8.0 hours), the period ends with the second month. If not, the period extends to the third month. If the soldier flies a total of 12.0 hours during the grace period, he meets his requirements and is paid for the entire 3 months.

However, if the soldier exceeds his 4-hour requirement for the third month, but fails to fly the entire 12 hours required for the grace period, he qualifies for flight pay only for the third month, regardless of how much time he has flown. Even if he had flown 11.9 hours, he would only be paid for the third month. When in a grace period, *you must qualify for the entire period to that point,* or only for the month that you are in. (Example: January-0, February-0, March-11.9, only paid for March.)

Once the grace period ends you cannot go back to it to qualify for pay. Excess time that was flown may be brought forward. Grace periods may not run consecutively unless flight-hour requirements were met for the first grace period. (If a soldier was in a grace period from January through March and did not meet his flight requirements for the entire period, he could not enter another grace period until he had met his flight requirement for at least one month outside the grace period. If he met the requirements to qualify for pay in April, he could begin a new grace period in May if necessary.

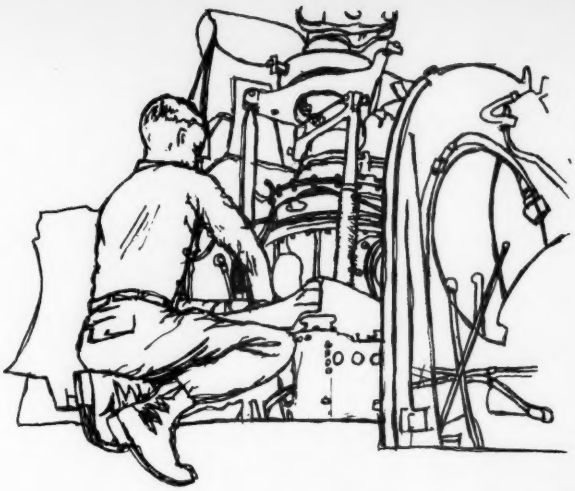
I explained that excess time is any time that is flown that has not previously been used to qualify for pay. Application of hours flown is always first to the month that the time is flown in. It does not matter if the soldier had 40.0 hours of excess time in the month of April, the first 4.0 hours he flies in May are used to qualify for May's flight pay. Any excess time would next be used in the preceding month or months as applicable, if the soldier was in a grace period. (NOTE: In the case we have been following, none of the 40.0 hours of excess time from April could be used to meet the requirements for January and February; the grace period had closed and the aviator has lost that pay forever.) The final application of excess time would be to the first, second, third, fourth and fifth succeeding months—but only to the extent that the soldier fails to fly the required 4.0 hours.

Theoretically, a soldier could legally draw 8 months of flight pay when in actuality he flew in only 1 month. (Example: No previous excess time, January-4.0; February-0, begins grace period; March-0; April-32.0. April ends the grace period, and the soldier qualifies for all 3 month's pay and still has 20.0 hours of excess time to be applied for May-September.) He would qualify for 8 months of flight pay by flying in only 1 month and would be perfectly legal under the guidance of the DOD Pay Manual, but he would violate AR 600-106 in that he would not be performing frequent and regular aerial flight and, therefore, should be removed from flying status.

This has been a quick overview of some identified problems commonly found in the management of enlisted flight status. Once again, it is the responsibility of all flight operations sergeants to ensure that they are thoroughly familiar with all aspects of managing flight status. They have a responsibility and a duty to both the commander and the soldier to ensure that only authorized and qualified personnel are on flight status, and to verify that soldiers receive all compensation to which they are entitled.

Any questions or requests for assistance concerning flight status may be made by calling AUTOVON 558-4691/6571; FTS (205) 255-4691/6571; or by writing: CDR, USAAVNC, ATTN: ATZQ-ES-E, Ft. Rucker, AL 36362-5000.

DES welcomes your inquiries and requests to focus attention on an area of major importance. Write to us at: Commander, U.S. Army Aviation Center, ATTN: ATZQ-ES, Ft. Rucker, AL 36362-5000; or call us at AUTOVON 558-3504, FTS 533-3504 or commercial 205-255-3504. After duty hours call Ft. Rucker Hotline, AUTOVON 558-6487 or 205-255-6487 and leave a message.



Aviation Basic Noncommissioned Officer Course

The Aviation Basic Noncommissioned Officer Course (formerly Basic Technical Course), is a 3-week, 3-day course designed primarily to improve the supervisory skills of selected noncommissioned officers performing at skill level 3 on aircraft powertrain repairs and maintenance.

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THE IMPORTANCE of the noncommissioned officer (NCO) is more obvious today than ever before. If all the verbage expressed by knowledgeable military leaders is not sufficient for us to realize this, we may simply look at the numerous programs that are geared toward attaining the goal of professionalism in the noncommissioned officers' corps: primary leadership development course, leadership and professionalism schools, the NCO education system, skill qualification and common task test, the emphasis by promotion boards on experience and performance in leadership positions and the enlisted personnel management system are just a few examples. They graphically point out the importance of noncommissioned officer development as a most important element of the unit.

The programs used as examples have one basic thing in common. They are all outside influences on the noncommissioned officer and clearly establish

a framework that is easily understood depicting his or her role as a professional and a leader.

Fiscal year 1986 marks the initial start of the Aviation Basic Noncommissioned Officer Course (BNCOC) for the 68D30 (aircraft powertrain repairman) formerly titled basic technical course (BTC). BNCOC was designed to provide selected noncommissioned officers with the skills and knowledge of basic leadership and aircraft maintenance management principles and procedures that enable them to successfully perform the supervisory duties required of the 68D30 military occupational specialty (MOS) series.

Prerequisites for the course are noncommissioned officers, 68D30, who are performing in or being assigned to skill level 3 positions. Because of unit shortages, soldiers in grades sergeant or specialist 4 (P) who are performing in staff sergeant supervisory positions are eligible for the course.

Course length is 3 weeks 3 days with the initial phase providing the leadership skills and managerial principles. Upon completion of the initial phase, each MOS proceeds to the individual specialty for the technical and end of course test. Instruction for the supervisor of the aircraft powertrain repair shop consists of group discussion, conference and performance oriented reinforcement training.

Subjects for the technical phase consist of aviation safety, aircraft maintenance management, aviation supply, supervisory skills, repair procedures and new developments in the 68D field, with primary emphasis on supervisory skills. Supervisory skills are discussed for each critical skill or task on each subject and are identified for each type of aircraft. Conference or discussion instruction provides instructor/student interaction with the ability to disseminate information, knowledge, skills and guidance to the student.

Supervisory intervention points are identified and discussed for each task. Intervention points are performance measures used to evaluate identified tasks during the performance of a maintenance procedure or process. It also is during this phase that students have the opportunity to discuss their field experiences, which would serve a two-fold purpose:

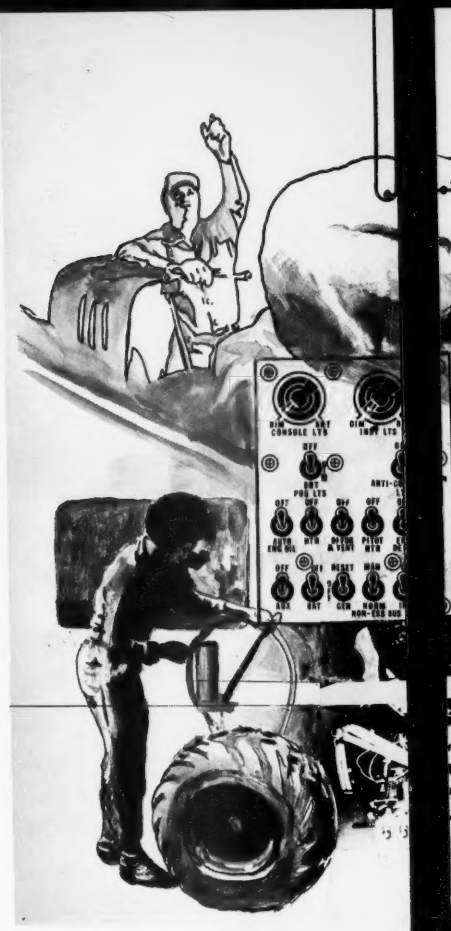
- First, it provides information on problem areas that may be resolved through the training arena.
- Second, it can provide information to other students that may assist in their respective units.

Hands-on training or exercises also provide further reinforcement training to the students to emphasize the supervisor intervention points. Phase examinations are given during various selected phases with the end of course comprehension test for the final exam. Students must maintain a 70 percent average to complete the course.

The introduction of new aircraft, along with associated systems and equipment, has increased the requirement to provide technically proficient supervisors and leaders with the ability to perform a wide variety of tasks and functions, both on and off the battlefield. Army Aviation organizations are small and better equipped, capable of performing independent or sustained operations as part of a combined arms force. Rapid tactical mobility is emphasized and structured with personnel and equipment to operate continuously for 3 to 5 days on all types of terrain and in all weather and battlefield environments.

BNCOC is a strong program that will indeed emphasize and strengthen the professional development of Army Aviation noncommissioned officers.

Aviation Advanced Noncommissioned Officer Course



Since 1 October 1985, the Aviation Advanced Noncommissioned Officer Course (ANCOC) has taken on a new posture with emphasis on "management." Senior NCOs, platoon sergeants or equivalent rank in the 67 and 68 career management fields are eligible for attendance. What follows is a synopsis of the revised, upgraded management subjects included in the new aviation management track of the ANCOC.

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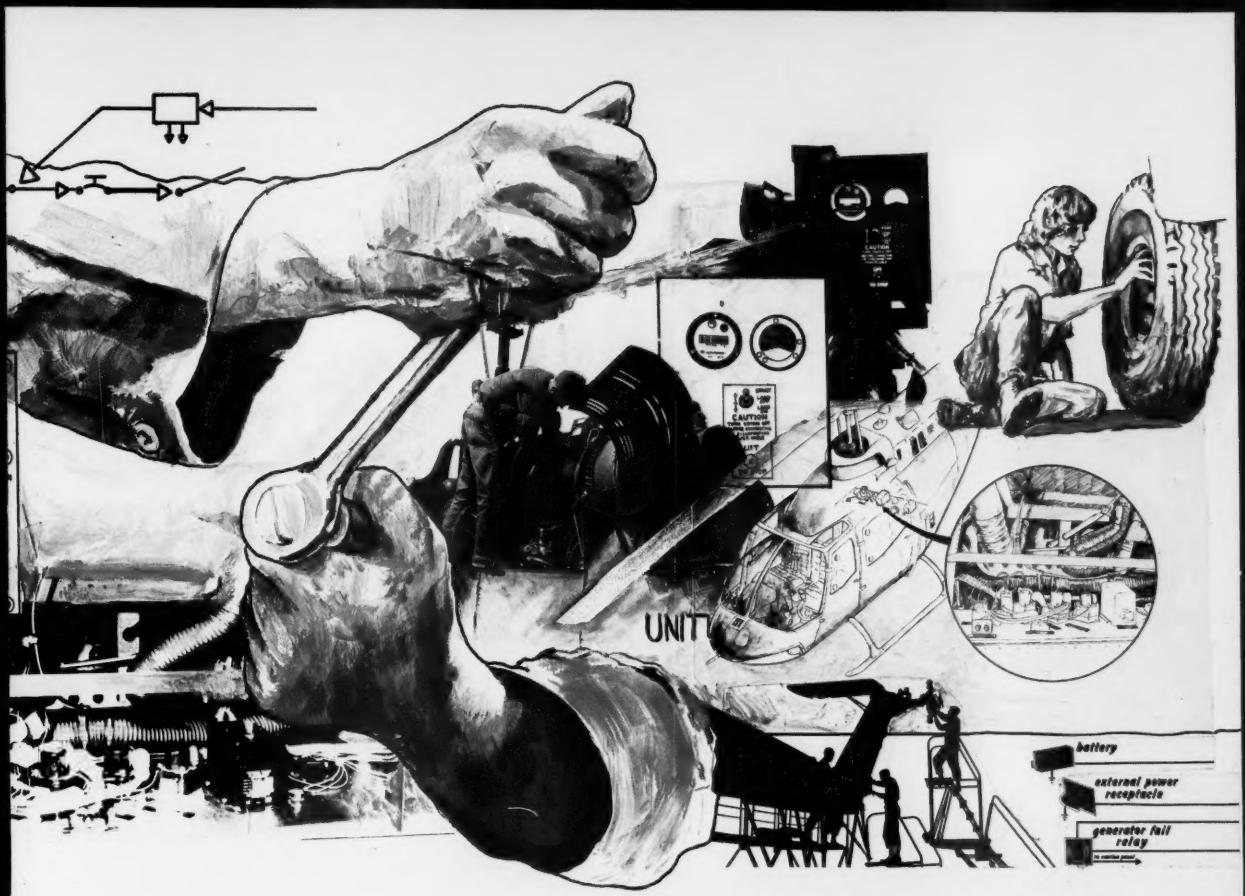
THE KEY WORD is "management." The new track portion of the Aviation Advanced Noncommissioned Officer Course (ANCOC) has been redesigned with management in mind. Too often in the past, aviation track subjects were nothing more than a review of knowledge that the noncommissioned officer (NCO) already possessed. On 1 October 1985 all of that changed. The new aviation track is geared for both the 67 and 68 career management fields for the platoon sergeant and compatible levels. New subjects have been added and some of the past subjects have been upgraded to the management level.

New subjects include shop management, property accountability, preventive maintenance checks and services (PMCS) ground support equipment, maintenance and shop inspection, and battle damage assessment and repair.

Shop management, a subject ignored in the



past, now has been incorporated with production control and maintenance management. One of the requirements of the students is to develop and write an internal standing operating procedure for both production control and shop offices. On the other hand, property accountability deals with the skill of maintaining maintenance and shop property. This includes the use of supply catalogs and tables of organization and equipment.

If there is a weak area in Army Aviation, it has to be ground support equipment. Hopefully the emphasis placed on how to set up and maintain a good PMCS program will help alleviate this problem in the field.

Another area that has to be dealt with in the field is that of inspections. As maintenance managers we all need to be able to identify maintenance performance indicators. Conducting inspections and being inspected are easy, but using the results of these inspections is something that has been neglected. The skills taught in this class will help the NCOs perform good inspections and use the results to their advantage.

A new concept being developed for Army Aviation is battle damage assessment and repair. In the new aviation track NCOs are familiarized with their roles as managers in battle damage assessment and repair doctrine.

Upgraded subjects that will remain in the aviation track are maintenance concepts and policies, safety, calibration, unit moves, supply support procedures, quality control procedures, the Army maintenance management system, and unit and equipment readiness reporting (DA Form 1352).

With emphasis placed on management, this new course will help develop the management facet of today's NCOs in the ever-growing and complex field of Army Aviation.

USAREUR

Joint Combined Arms Exercise

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APO New York

Two of the most powerful components of the combined arms team, the M-1 Abrams main battle tank and the AH-1S Cobra attack helicopter, move into position during a recent joint combined arms exercise at Grafenwoehr Training Area, West Germany. A four-tank platoon of M-1s and 21 Cobra helicopters, all from the 11th Armored Cavalry Regiment, supported the exercise along with a platoon of M-3 Bradley cavalry fighting vehicles, fire support team vehicles, a battery of 155 mm self-propelled howitzers, four U.S. Air Force A-10 Thunderbolt close support aircraft (right) and four F-16 Fighting Falcons. Most of these weapons were controlled by two Army captains—a ground commander and an air battle commander.

MORE THAN 250 North Atlantic Treaty Organization (NATO) general officers assembled at Grafenwoehr, West Germany, recently to see U.S. Army and Air Force units conduct a joint combined arms exercise and to witness the first firing of the highly accurate Copperhead artillery round in Europe.

The exercise was conducted on the 7th Army Training Command's largest, most modern computerized combined arms live fire facility, Range 301, to show how the ground and air forces intend to fight together if called upon to defend NATO on European soil. The generals also saw how effective the Copperhead round is against laser designated targets, a capability new to the Field Artillery in Europe. Every target fired at with Copperhead in the exercise was totally destroyed.

Stressing that the scenario was a defense designed to stop enemy aggression, General Glenn K. Otis, commander of the U.S. Army in Europe, welcomed guest observers including General Bernard Rogers, supreme allied commander, Europe, and by many other key NATO leaders.

Participating units included the Army's 11th Armored Cavalry Regiment (ACR), Fulda, Germany, and 2d Battalion, 75th Field Artillery, Hanau, Germany. An Air Force 81st Tactical Fighter Wing A-10 Thunderbolt unit, the 510th Tactical Fighter Squadron (TFS), Royal Air Force, Bentwaters, England, and an F-16 Fighting Falcon element from the 10th TFS, Hahn Air Base, Germany, provided close air support during the exercise. The A-10s fired their 30 mm cannons and the F-16s dropped 500-pound "Snakeye" general purpose bombs.

Army hardware used included: the 105 mm M-1 Abrams Main Battle Tank; 25 mm M-3 Bradley Cavalry

Fighting Vehicle; 155mm M-109 self-propelled howitzer; AH-1S Cobra attack helicopter; OH-58 Kiowa scout helicopter; M-113 Fire Support Team Vehicle; and various command, control and communications vehicles.

Soldiers from the 11th ACR's 58th Engineer Company provided demolitions support, simulating incoming enemy artillery and other special effects with 20,000 pounds of explosives placed throughout the multimillion-dollar range complex. The explosives were used to graphically demonstrate the effects of an attacking force—the lethal assault NATO ground commanders would face while trying to direct combined arms action against an enemy within their sectors of the battlefield.

Speaking about the conduct of the exercise, General Otis said, "First, the weapons you see have been brought together...by a captain on the battlefield: That's the fellow in charge. Second, there is no single dominant weapon system, but air and ground (forces are) working together as a synergistic whole.

"We will," General Otis added, "demonstrate how a JAAT, a joint air attack team, operates with artillery, A-10s, Cobra helicopters and the ground fighters."

A JAAT is a cooperative effort between the Army and the Air Force, and is controlled by an air battle captain who—when available and called into action by the ground commander—works to thwart the enemy's advance. Friendly artillery and airplanes work in concert to hinder enemy air defense assets and to disrupt the first committed motorized rifle battalion so that F-16s, or other high performance aircraft, can strike deep against the main force—the armored battalions in the rear of the enemy's lead regiment.

According to Threat doctrine, a cross-border regimental attack would begin with a reconnaissance element of two BMPs (armored personnel carriers) and a tank. A company sized force would be minutes behind the recon team. The company would be followed by a motorized rifle battalion, and the rifle battalion would be followed into the fray by the main force, two armored battalions.

Friendly and enemy artillery, airplanes and air defense would be involved in action throughout the attack, seeking to weaken each other's capability to continue the assault or defense.

The exercise at the training area demonstrated the defensive actions that would occur all along the East-West battle front. Properly executed, the joint combined arms team can stop an enemy attack cold, according to senior Army officers who are involved with the day-to-day defense of NATO's Central Region.

The exercise consisted of three phases: an orientation on a large mapboard; an animated, scale model JAAT demonstration complete with moving tanks, hovering remote-controlled helicopters, "flying" A-10s and simulated artillery; and a narrated, 45-minute-long live fire operation. A three phase approach was used to clarify exactly how the joint combined arms concept is employed by U.S. Forces in Europe.

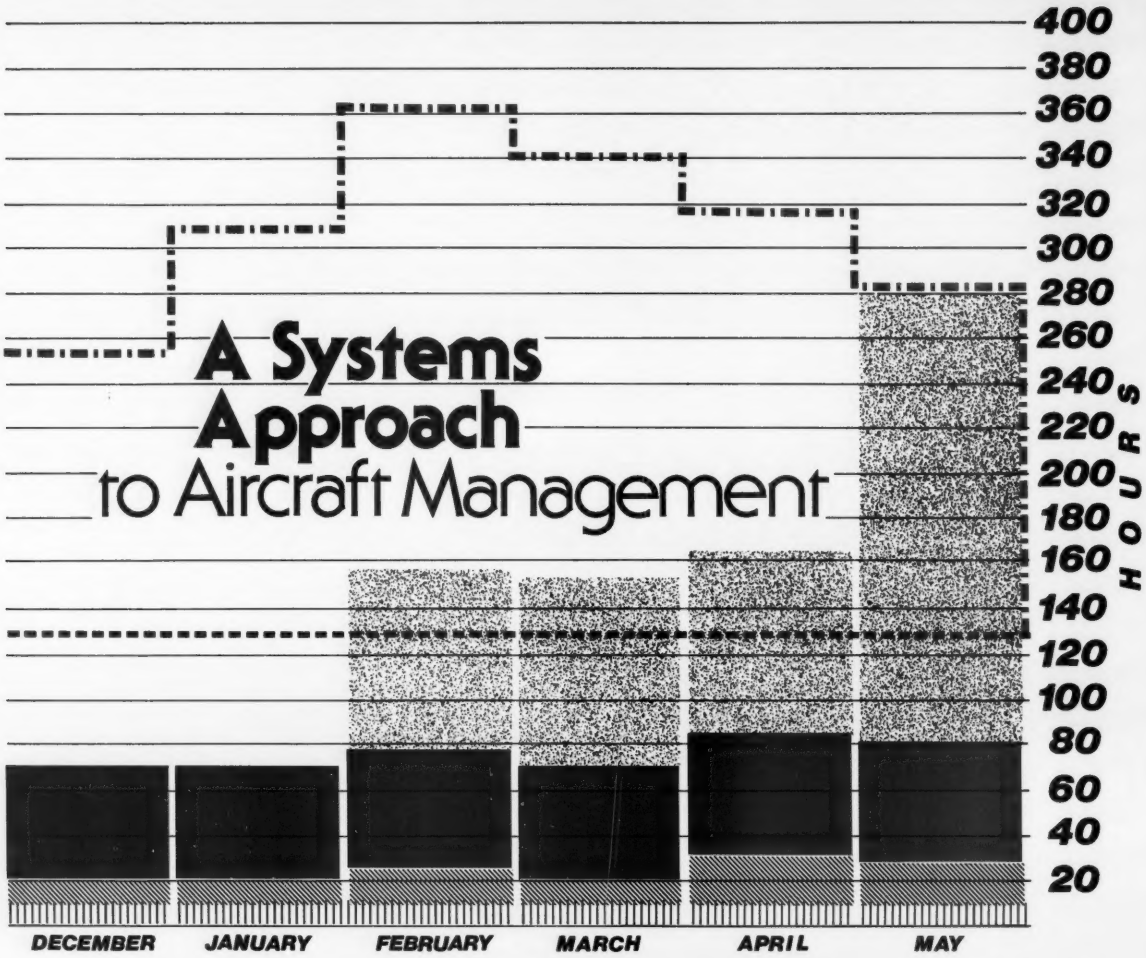
A static display setup within a large German fest tent next to the observers' stands housed equipment that was, or could have been, used in the exercise. The Army's Multiple Launch Rocket System (MLRS), which has the equivalent firepower of several hundred 8-inch howitzers, was one of the systems not used in the exercise. The MLRS requires a large safety area not available within the immediate confines of the exercise site. The Air Force antiarmor Maverick missile is another weapon not used. The Maverick, fired from A-10s, has a 25-mile safety waiver requirement; the Grafenwoehr Training Area is not large enough to accommodate its firing.

Mention of the MLRS and Maverick is made to note that the ground commander—the fellow in charge—has a lot of power, many assets he can call on to stop aggression.

Most of the weapons systems in the exercise incorporate the latest technology. The Field Artillery, for example, now has the capability to destroy pinpoint targets, thanks to Copperhead and the ground laser locater designator. The GLLD, pronounced "GLID," is a laser-emitting device that literally marks the spot where the Copperhead impacts. Copperhead targets can be designated by a number of other ground and airborne lasers as well, according to officials from the U.S. Army's Project Manager for Cannon Artillery Weapons Systems.

Copperhead, which has been in production since 1982 and costs about $36,000 per round, is used to destroy high priority targets like command and control vehicles, air defense assets, scout elements, and any vehicles that—when immobilized—will slow the enemy's advance.

Because of its high-tech, force-integrated approach to war fighting doctrine, NATO—especially the U.S. Forces in the alliance—have the capability to halt a conventional, numerically superior Threat attack into the West. According to many of the soldiers and airmen involved in it, the exercise is proof that the U.S. Army and Air Force are a viable deterrent to aggression in Europe. If deterrence fails, however, the U.S. Forces and their NATO Allies are ready to stand against and stop the Threat.



Major Hancock's study of his unit's flying hour capabilities and projected requirements is accurate. To schedule flight missions in excess of his recommendations will jeopardize the validity of the high technology test bed evaluations of both this battalion and the 9th Cavalry Brigade (Air Attack)...

Battalion Commander

Major Rick D. Hancock
Chief of Plans
Directorate of Plans, Training, Mobilization and Security
U.S. Army Aviation Center
Fort Rucker, AL

COMBAT EFFECTIVENESS is the key to victory on the air-land battlefield. While many factors affect a unit's combat effectiveness, surely proper management of aircraft ranks among the more important.

This article presents an abridged version of a self-study about aircraft management conducted by A Company, 9th Aviation Battalion, Ft. Lewis, WA, in November 1981. It provides an example of a systems approach to aircraft management that can be applied in organizations with similar functional and operational aspects.

This study initially was conducted to determine the unit's capability to meet aircraft availability and flying hour requirements for the high technology test bed (HTTB) evaluation conducted in February and May 1982. Once the study was completed, it was updated regularly to evaluate its effectiveness and to facilitate the planning of future requirements.

The HTTB evaluation was a 4-month tactical validation of the prototype Division 86 cavalry brigade (air attack) force structure. Alpha Company (figure 1) was the prototype general support company within this brigade, with the tactical mission to provide command/control/liaison aircraft to the division and Field Artillery aerial observer aircraft to the division artillery.

As the sole divisional source of command and control aircraft, the general support aviation company received its missions on a priority basis from division G3. Due to the austerity of these resources, mission requests were frequently unsupportable. No system existed that could resolve a disparity between mission requests and aircraft availability.

The company commander defined the problem: "What must be done in terms of aircraft use and maintenance to ensure completion of the HTTB evaluation with a

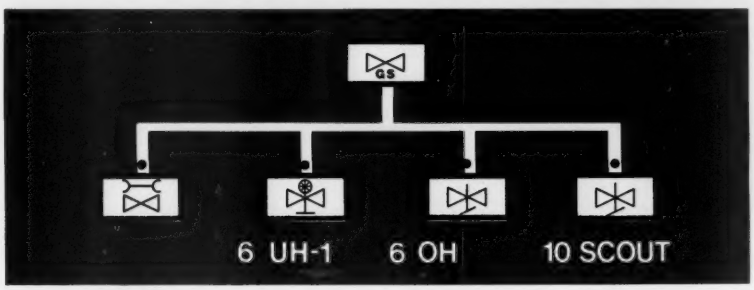


FIGURE 1

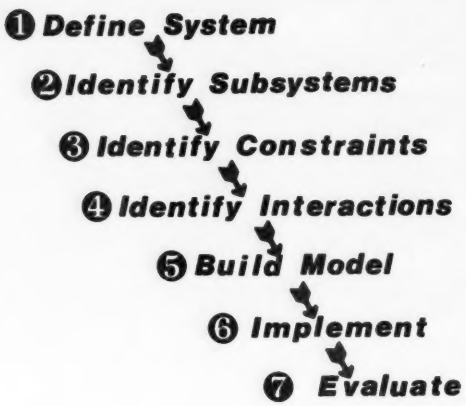


FIGURE 2: Elements involved in the systems approach.

readiness posture of C-1?'' (readiness category 1 posture).

This systemic problem lent itself to evaluation using a systems approach (figure 2). The problem was identified as a system composed of several interrelated subsystems. Each subsystem was evaluated in detail and all interactions were identified. The subsystems were then integrated so that they would produce a greater effect together than the sum of the independently operating subsystems.

The first subsystem evaluated was flying hour requirements (figure 3). To determine the flying hours required for the 6-month period (December 1981 through May 1982) the following assumptions became discernable:

- All instrument check rides are to be flown in the synthetic flight training system.

DEC	UH-1	OH-58
HTTB	—	—
AAPART	12	4
Maintenance	10	10
Support	50	200
Total hours	72	214

FIGURE 3: Flying hour requirements.

- Aircraft are flown only in support of missions, checkrides (other than above) and maintenance flights. No flights are flown solely to support aircrew training manual minimums.
- Hours required to prepare, deploy and recover from evaluations are not included in projected HTTB requirements.
- During the HTTB evaluation, hours flown as mission support are credited against HTTB requirements.

Major elements inputting into flying hour requirements were identified and quantified.

- HTTB requirements were provided by the evaluation controllers.
- Annual proficiency and readiness test requirements were calculated on known aviator checkrides. Allowances were not made for failures or initial evaluations of newly assigned aviators.
- Maintenance requirements were based on historical records that were factored for upcoming phases.
- Mission requirements were projected by the division G3.

The second subsystem evaluated was maintenance production capacity. The organic maintenance platoon provided the independent capability to perform all aviation

DEC	UH-1	OH-58
Start	200	1,951
Projected	– 72	–214
Subtotal	128	1,737
1 1/3 Phase	+130	+400
Total	258	2,137

FIGURE 4: Maintenance projections for 1 month.

unit maintenance tasks. Using the 23 November aircraft status report as a point of departure, projections and calculations (figure 4) were based on the following assumptions:

- All phases are completed within 15 working days.
- There is no extended downtime for parts.
- Unscheduled maintenance is negligible.
- Aircraft availability is maintained at 80 percent.
- Skill qualification testing and the Christmas schedule have negligible impact.

The flying hours and maintenance production capacity were calculated for each month (figure 5) and for both

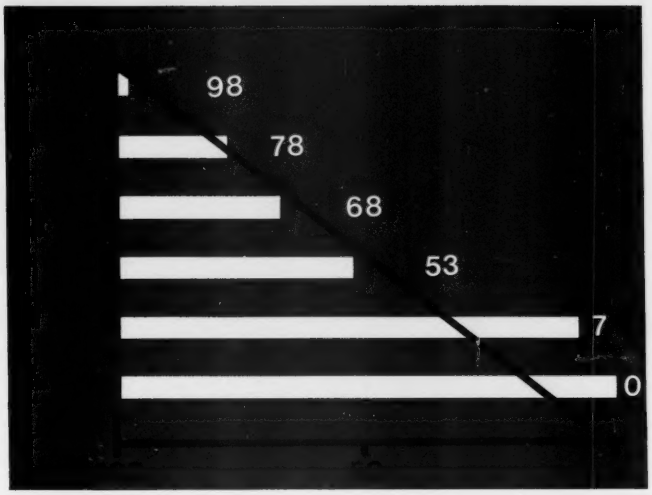


FIGURE 5: UH-1H flow chart.

Maintenance
Support
ATM
Flying Hours
Unit Training

FIGURE 6: Other management applications.

types of aircraft. Resultant capability projections were optimistic at best and represent a maximum capability. The actual capability was expected to be less, depending on the degree of variance from the projected flying hours and the number of actual phases.

Integrating the two projections revealed that the unit would be unable to sustain the flying hour requirements for each month of the HTTB evaluation. Based on the most optimistic projections, the shortfall of only HTTB requirements was 151 UH-1 Huey hours and 239 OH-58 Kiowa hours. To overcome the shortfall, bank hours had to be accumulated during December and January.

Desired flow charts at the beginning of the evaluation in February and projected at evaluation completion on 1 June were established for each platoon. Quantifiable requirements were now available for the unit to methodically prepare and prioritize actions.

It became evident that the unit could meet the flying hour requirements only under the most ideal conditions outlined in the assumptions. The following maintenance objectives were established:

- UH-1: Four phases must be completed and 456 hours available on 1 February.
- OH-58: Four phases must be completed and 2,716 hours available on 1 February.

Substantiated by the self-study, the unit made the following immediate recommendations:

- Alpha Company be given priority for battalion maintenance support.
- Mission loads for December and January be reduced below 50 hours for UH-1s and 200 hours for OH-58s.
- Mission loads for February through May be maintained below hours derived by this operational model.

This study provided unit leaders with a dimensionalized model with which to: effectively manage their aircraft; set objectives and goals; and, evaluate their unit's performance. The model is interactive, which allowed external participants to derive substantial benefits. Division G3 was provided authenticated calculations upon which to base priorities of mission assignments while the aviation intermediate maintenance could project its support requirements.

The process is iterative, so subsequent changes of inputs and constraints are easily accommodated. Since subsystems are examined in detail, the model can be easily adapted to other related management problems (figure 6).

Acknowledgement

The author gratefully acknowledges the personnel and families of Co A, 9th Avn Bn. Their performance and sacrifice ensured successful completion of the 1982 HTTB evaluation.

U.S. Army Information Systems Command

ATC ACTION LINE

Restriction to Overflight of Department of Energy Nuclear Facilities

Recently Department of Energy (DOE) asked that the Army voluntarily enter into an agreement to restrict overflight of nine DOE nuclear facilities. These facilities are located as follows:

Savannah River Facility—Aiken, SC
Oak Ridge Facility—Oak Ridge, TN
Rocky Flats Facility—Golden, CO
Idaho Falls Facility—Idaho Falls, ID
Los Alamos Facility—Los Alamos, NM
Richland Facility—Richland, WA
Site 300 Facility—Livermore, CA
Lawrence Livermore National Laboratory—Livermore, CA
Pantex Facility—Amarillo, TX

In keeping with the Army's "Fly Neighborly Program" it was decided to conduct a survey to determine if this could be done. In conducting the survey, letters were sent to the major Army commands (including the National Guard and Reserves) and meetings were held at the Savannah River and Rocky Flats facilities. As a result it was determined that the Army could accommodate the DOE request. Accordingly, soon to be published in the Department of Defense Flight Information Publication are the following instructions for Army aviators only. (The Navy and the Air Force were asked to participate, but declined.)

"Until otherwise advised, Army aircraft will not overfly DOE nuclear facilities, identified on aeronautical charts and maps as having National Security Areas, below 2,000 feet AGL except when:

a. Flight across a facility is necessary because of an emergency or military necessity.

b. A VFR flight is forced below 2,000 feet AGL because of weather and the pilot cannot circumnavigate the area.

c. Flight is in support of a DOE requirement or mission.

When an exception occurs, according to a and b above, the pilot will attempt to communicate, by telephone or radio, with the particular DOE facility prior to overflight of the facility. In the event contact cannot be established prior to overflight the pilot will report the overflight to the DOE facility after the fact.

Telephone calls concerning overflight will be paid for by DOE. Army personnel will reverse charges for all such calls."

Mr. Jesse Burch
U.S. Army Air Traffic Control Activity
Aeronautical Services Office
Cameron Station, Alexandria, VA

Correction: The February Action Line statement in the middle of paragraph 4, "Make sure both reported...," conflicts with AR 95-1, paragraph 4-5*b*(5), *"An approach may be initiated, regardless of ceiling and visibility."*

Also another sentence needs clarification. On the last line of column 1, beginning with "Never...." AR 95-1, paragraph 4-5*d* states:

d. Landing. An aircraft will not be flown below the published MDA or an approach continued below the DH unless the following exist:

(1) The approach threshold of the runway, or the approach lights or other marking identifiable with the approach end of the runway or landing area, must be clearly visible to the pilot.

(2) The aircraft must be in a position from which a safe approach to the runway or landing area can be made.

In all cases, procedures cited in the regulation are to be observed.

Readers are encouraged to address matters concerning air traffic control to: Director, USAATCA Aeronautical Services Office, Cameron Station, Alexandria, VA 22304-5050.

ABOVE THE BEST

CW3 Richard H. Walch

Chief Warrant Officer (CW3) Richard H. Walch received the Broken Wing Award for safely landing a UH-1 Huey helicopter after it was struck by lightning during a routine medical mission flight. MG Henry H. Harper, commander, U. S. Army Depot Systems Command, presented the award to CW3 Walch during ceremonies at Seneca Army Depot, Romulus, NY.

CW3 Walch was returning to his parent organization, the 421st Medical Company (Air Ambulance), when the lightning struck. Despite severe damage to the aircraft, CW3 Walch landed safely in an open field. None of the five people aboard the helicopter were hurt. An inspection of the helicopter revealed that rotor blades were torn in several places. Stainless steel bearings were partially burned and melted. All of the teflon coating in the main rotor system was melted and both electrical control units on the engine failed. Also most of the engine and transmission instruments had failed or were giving incorrect readings.

In spite of extreme conditions which easily could have resulted in disaster, CW3 Walch maintained his composure and displayed extraordinary skill, judgment and flying techniques as an Army aviator.

Dear Lieutenant

WELCOME TO Army Aviation! Soon you'll be graduating from flight school. Before you get to your first unit, there are some things that you need to know. There are four traps that await you. Too many of your contemporaries have fallen into one or more. If you'll avoid them, you're sure to be a welcome addition to this exciting branch. Please pay attention. ***I want you to be a success!***

The Pilot TRAP. You've been tricked. They issued you that keen flight gear and let you climb into a cockpit almost every day for the last year. You assume, logically enough, that this is what you'll be doing when you get to your unit. You're wrong. If you wanted to be just a pilot, you joined the wrong service. Flying probably will be but a small part of your duties. You are a combat arms officer. There is too much else to do.

Lieutenants who refuse to accept this demonstrate that they don't understand their role. The simple fact is that all aviators want to fly more than they do. You may well be in a position to decide who flies in your section. Never subscribe to the warped logic that you should fly more than your warrant officers since they'll be flying their whole careers anyway. ***Unfair officers do not succeed!***

The Credibility TRAP. When brand new Infantry second lieutenants finish their basic course, they are typically given a platoon. A good many of the platoon members assume that these second lieutenants know more about Infantry than they do. True or not, this assumption of competency gives the second lieutenant a degree of credibility. Each is put in charge of 40 or so soldiers. If they are clever enough to listen to their sergeants, before long they *are* competent. Moreover, they are developing critical leadership skills as they deal with their soldiers.

What about Army Aviation second lieutenants? When they arrive at their units, there isn't a single person there (to include the WO1 who arrived last week) who is perceived to know less about what's going on than they do. Everyone knows what school a new second lieutenant just came from. How do you establish the credibility that was handed to your Infantry friends? It won't be through flying. Everyone in the unit has more time than you. The best that you can hope for is that you'll be regarded as a safe and conscientious pilot. So what can you do? For some, the answer is nothing. They wander around the pilot's lounge waiting to be veterans. They don't earn their credibility. ***They will not succeed either!***

The Extra Duty TRAP. Do the words "motor pool" send chills up your spine? How about "unit supply"? Some second lieutenants avoid challenging extra duties like the plague. Listen to them: "I didn't join the Army to push paper! I'm an ***aviator.***" What these wayward youth forget is that the Army runs on systems. Mastering these systems is vital to successful command. You are a future commander. There is so much to know. Those who avoid extra duties delay learning. You guessed it; ***they won't be successful either!***

The Logistics TRAP. This is a big one. It is born of the misconception that "real" aviators are interested in tactics while the beans and bullets stuff is handled by pencil-pushing aliens from a planet called "EUSTIS." There is no denying that it is more fun to practice zone recons than it is to figure out how to get the gas, bullets and parts to support the exercise. Some lieutenants happily ignore the logistics stuff, claiming that it isn't their job. They have made two mistakes. First, they forget that they are never more than 2 hours from uselessness. Tactics and logistics cannot exist separately. If you don't take the time to learn maintenance and supply, you can't effectively lead. Second, almost all Army Aviation enlisted soldiers are involved in logistics. If you have no idea what they do, how can you be in charge?

A bleak picture? Not at all. The escapes are simple, not always ***easy,*** but simple. For the ***Pilot TRAP,*** it is as simple as accepting reality gracefully and treating your subordinates with the fairness that they deserve. The ***Credibility TRAP*** is avoided by listening and learning from your warrant officers while remembering that you are paid to be in charge. They'll respect honest mistakes. On the other hand, they'll have no use for a lieutenant who surrenders authority in order to avoid stress. The ***Extra Duty TRAP*** solves itself. Take the tough ones. As for the ***Logistics TRAP,*** it is a matter of being inquisitive. Aviation is a fascinating business. Look around, ask questions, talk to soldiers and vow to learn something new everyday.

If you'll avoid these traps and try your best at everything you do, you'll be the successful leader that we need. It is an exciting and rewarding life. We are happy to have you. ***Good luck!***

Captain Robert C. McGowan
B Troop, 4th Squadron, 7th Cavalry
APO San Francisco